

AIR CONDITIONING & REFRIGERATION

NEWS

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Inside Dope

By GEORGE
F. TAUBENECK



Learn to live and laugh —
thus delay your epitaph

Stories of the Week
Churchgoing Smile
Mercy on Them
Practical Benevolence
Another Good Program
Leave 'em Laughing

Stories of the Week

Panhandler asked Charlie Lawson of Kelvinator for five dollars.

"That's a big touch," soft-voiced the benign and humane Mr. Lawson.

"Uh huh. I wanna quit work early today," was the rapid reply.

Flashed over the news ticker service came a report that Hartford, Connecticut, had received a noise-abatement award. Ed Flannery of Bush phoned a city official to offer congratulations.

"Can't hear a word you're saying," yelled the official. "Too much racket around here."

With the biggest vote in 40 years an unlettered hillman was elected to the legislature of a state which shall remain nameless, for obvious reasons.

Recognizing this Unknown's political power, party leaders and lobbyists entertained him at a dinner. First course, a consommé. Second, roseate celery and carrots. Third, lobster-in-the-shell.

Latter "dish" was too much for our hominy-grits and side-pork Man of the People.

"Didn't mind spooning your dishwater, or eating bookays," he protested. "But you'll never get me to eat yore Big Bugs."

Churchgoing Smile

A Christian missionary tried converting a Zulu Chief.

"Am I to understand," queried the chief, "that if I accept Christianity I must quit stealing my neighbors' wives?"

"That's right."

"And if I accept Christianity I must give up lying in wait for my enemies along the trail?"

"That's right."

"Well," mused the Zulu chief, "I'm too old to do any of those things anyhow. Growing old makes becoming a Christian a simple thing."

Mercy on Them

You may never have realized this—as we didn't—but:

Many paraplegics—those afflicted with paralysis on the lower half of the body on both sides—because of their physical condition, are unable to perspire.

(Concluded on Page 6, Col. 1)

Home Cooling Sales Push Aim of July 30 Meeting

WASHINGTON, D. C.—The design, financing, and promotion of air conditioned homes will be discussed at an all-day conference of builders, air conditioning manufacturers, mortgage lenders, and government officials, to be held at the National Housing Center here on July 30.

Objectives of the meeting, according to Neal Hardy, director of the Housing Center, are stimulation of closer interest between manufacturers and builders on central system air conditioning for single family homes, and to explore methods of expanding the use of such systems in residences.

Chairman of the conference (Concluded on Back Page, Col. 1)

IGA Plans Automatic Shopping Units In 12 Cities Starting In Sept.

NEW YORK CITY—The Independent Grocers' Alliance disclosed recently that automatic shopping units will be installed in about a dozen test areas beginning in September.

The association also revealed that an equal number of after-hour automatic departments will be installed in front of or in the parking lots of major IGA markets.

An IGA spokesman was quoted as saying that at least (Concluded on Page 4, Col. 4)

Toledo Restricts Outside Units to Back Yards

TOLEDO—Householders were warned by David C. Colony, city building inspection commissioner, that if they erect outside home air conditioning units within 5 ft. of their side-yard property lines, they are violating city zoning requirements.

Colony said that his office has received a number of complaints from neighbors about the (Concluded on Back Page, Col. 3)

G-E To Raise Factory Prices on Appliances

LOUISVILLE, Ky. — Rising costs have forced General Electric Co. to raise factory prices of some of its refrigerators, freezers, and electric ranges, it was announced last week.

Increases in refrigerators and freezer prices range from 2% to 4% and range price boosts average about 4%, according to the company spokesmen.

It was pointed out that distributors establish retail prices but that these prices "normally reflect changes in factory prices."

Cooling Off

Air Conditioning In the Public Eye

As the Ringling Bros. Circus unexpectedly gasped its last hot breath in Pittsburgh recently, Show President John Ringling North asserted that the show would be back next year. But, he emphasized, the "big top" has gone up for the last time. After its opening in Madison Square Garden, the circus will perform only in air conditioned arenas around the United States.

At the Eisenhower farm at Gettysburg, the most "lived in" room is the air conditioned, glassed-in porch that gives a "calm, quiet view" of the lawn and blooming roses. It is a special retreat for Mrs. Eisenhower.

Air conditioning is a political football in the Columbus, Ohio city hall these days. City council wants its chambers and committee rooms cooled. Mayor Sensenbrenner won't go for it—despite the fact that his office is air conditioned. Votes and vetoes fly!

When Thoralf Thyholdt, messenger in the Norwegian embassy in Washington, D. C., wanted a little cooling, he flipped the switch on the air conditioner. Instead he found himself surrounded by policemen wanting to know what the trouble was. Seems the air conditioner wiring got tangled up in the burglar alarm.

Writes the Mombasa correspondent of the magazine, *East African Trade and Industry*. "Since last November sales have soared in air conditioning units for domestic and office use, and it is considered by dealers that the next five years will show that air conditioning is as essential as a refrigerator." Mombasa is a port city for the British colony of Kenya and lies just south of the equator.

St. Bartholomew's Protestant Episcopal Church on Park Ave. in New York City is believed to be the first Protestant church in the city to be fully air conditioned. An endowment for the church paid the bill.

The Kings County, N. Y. grand jury complained recently about the "intolerable conditions under which we are forced to work." Judge Hyman Barshay was sympathetic and passed the jury's request for air conditioning on to the county budget director. He added helpfully that not only the grand jury rooms but also several smaller courtrooms could be air conditioned for \$10,000.

What to do about pigeons who want to share the benefits of your air conditioner and build their nests in them. Tenants in the Mills Building in Washington, D. C. put rubber mice around the units. No pigeons!

Consent Decree Bars Philco From Buying Transshipped Item

Agreement Protects Distributor, Dealer Contracts

House Unit OK's Tighter Bill on Car Dealer Rights

WASHINGTON, D. C.—A bill that would give automobile dealers the right to sue in court for damages if manufacturers abused their franchise agreements was passed recently by the House Judiciary committee.

The House bill, however, is considerably more restrictive in its terms than the Senate-passed version. It strictly defines the "good faith" in which auto manufacturers would be required to carry out their dealer contracts. It also requires that any suits charging bad faith must be started within three years after the display of alleged bad faith.

The bill further prohibits manufacturers from canceling franchises unless they contain specific dealers standards and unless the dealer hasn't reasonably performed his responsibilities.

Committee members indicated that the bill had a good chance of being passed by Congress this session.

No House Action Seen On Anti-Bid Shopping

WASHINGTON, D. C.—The House Rules Committee recently refused to clear for House action a bill to ban bid shopping on government contracts.

The measure has been passed by the Senate and the House Judiciary Committee.

The bill would require a general contractor to name in his bid for a government contract the subcontracting firms he plans to use. He would be permitted to change subcontractors only with government approval and any savings effected by the change would go to the government and not the general contractor.

PHILADELPHIA — An anti-trust case against Philco Corp. was settled by a consent decree July 13 signed in U. S. District Court here.

The company had been charged with restraining trade through its franchise agreements with distributors and dealers.

The settlement enjoins Philco from entering into agreements with a distributor that would give Philco the right to purchase transshipped Philco products for the distributor's account.

It also rules out agreements that would prevent the distributor from dealing in products not manufactured by Philco or limiting the persons to whom, or the territory in which, the distributor may choose to sell.

On the other hand, it recognizes Philco's right to select and continue its own independent distributors and to designate geographic areas in which they shall be primarily responsible for wholesaling Philco products.

It also recognizes Philco's right to terminate distributors who do not adequately promote the sale of all Philco products in their respective areas.

James M. Skinner, Jr., Philco president, commented, "While the settlement will prevent any effort to curb the harmful practice of transshipping, that practice has become less widespread in recent years. It is not the disrupting factor today that it was in the summer of 1954 when Philco decided to make strenuous efforts to stop transshipping."

"The terms of the settlement represent a realistic solution arrived at through long negotiations in which the lawyers for the Anti-Trust Div. demonstrated a genuine understanding of the problems encountered today by manufacturers in the highly competitive appliance field."

Skinner added that the settlement does not affect arrangements under which distributors are held responsible for proper (Concluded on Back Page, Col. 4)

BEHIND PAGE ONE . . .

Domestic Refrigerator Conference

Do Today's Refrigerators Fail To Supply Proper Storage Temperatures? 8

Frozen Foods Storage Room

Eight Inches of Insulation Helps Maintains -20°.. 12

Healthy Humans Adjust to Heat, Cold

Heat Regulators Allow Quick, Safe Adjustment.. 15

Master Panel Controls 400 Zones

Electronic Dial Allows Control from One Point.. 16

NARDA Discusses Issues of '56

Dealers See More Work for Less Money..... 18

Servicing Weathertron Heat Pumps (3) 24

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SALES REPRESENTATIVES IN ALL PRINCIPAL CITIES

Amana Names Weigle FPC Ruling Enables To Development Post Detroit To Add 60,000 Gas Heating Units

AMANA, Iowa — Robert J. Weigle has been named dealer development manager for the Washington, D. C. sales region of Amana Refrigeration, Inc., it was announced here recently by Joseph E. Guertin, director of dealer development.

Weigle succeeds Donald L. Withers who has been transferred to Amana's Omaha sales region.

Weigle will assist Amana dealers and distributors in the region in the development of dealer franchising, training, and promotional programs. The territory includes northern and eastern Virginia, eastern Pennsylvania and Maryland, as well as the District of Columbia.

Before joining the Amana organization, Weigle had served as sales manager for several Washington appliance firms.

DETROIT — A bottleneck to the installation of some 60,000 gas space heating units was broken here recently when the Federal Power Commission finally raised the ceiling that had limited the number of gas heating customers served by outlets of the Michigan-Wisconsin Pipe Line Co.

The Michigan Consolidated Gas Co. announced that it would issue permits to some 40,000 customers who had filed applications for heating gas prior to May 22, when the utility stopped taking applications. Some 20,000 additional customers will also be served.

Supplies of natural gas to Michigan are expected to be increased within the next few weeks when pipeline extensions will be completed by the American-Louisiana Pipe Line Co. American-Louisiana taps fields in the south.

Furniture Marts Due Oct. 15-19, Jan. 7-18

CHICAGO — The board of governors of the American Furniture Mart recently approved Oct. 15-19 and Jan. 7-18 as the respective dates for the AFM fall and winter home furnishings markets, and June 19-29 as the dates for the 1961 summer market.

Meat Undamaged as Blaze Razes Newark Locker Plant

ROCHESTER, N. Y. — Fire razed the Newark Freezer & Locker Corp. plant, causing an estimated loss of \$75,000.

The actual locker section, which contained 500 lockers full of meat, was undamaged. Destroyed were freezer cases, office equipment, three coolers and a smaller unit, freezing equipment for the lockers, and other apparatus. The building was partially covered by insurance.



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for
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LOAD UP
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"YOU CAN SELL
EVERY FOOD RETAILER"

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the hottest
thing
in

LOW

temperature

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for you. It's the only LOW temperature
automatic hot gas defrost system
that works trouble-free at any
temperature level, from plus 32° to
minus 75°. Let us prove that it costs less
to own the best!

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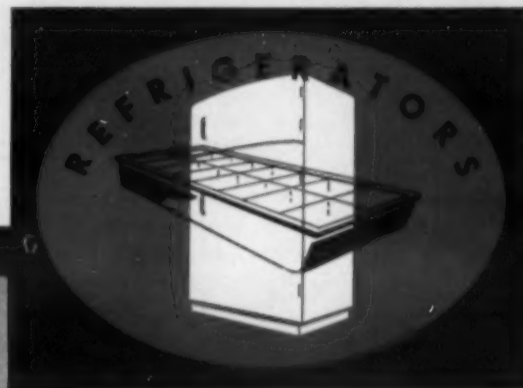
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Trenton 5, New Jersey

Tecumseh COMPRESSORS

encompass **EVERY** refrigeration application!



2 OUT OF 3 HOUSEHOLD REFRIGERATOR MANUFACTURERS USE *Tecumseh* COMPRESSORS

HERE'S WHY—Tecumseh has designed and expanded two complete lines for this application. Outside dimensions for each type of compressor are identical in all horsepower sizes. Therefore, the manufacturer of domestic refrigerators need design only one machine compartment for his entire line. All standard size household cabinets, as well as vertical freezers, may utilize this design, providing a major advantage in tooling and production costs.

The pancake line, now produced from 1/12 H.P. to 1/4 H.P., has BTU ratings from 285 to 1000, in regular increments. Customers realize additional savings in original cost, because this type compressor is a large volume item and economical to build.

The single cylinder, internal mount line covers approximately the same range of sizes. Starting at 1/8 H.P. it runs to 1/4 H.P. with BTU ratings from 430 to 1030.

These 13 basic models are flexible enough to be supplied in literally hundreds of variations. This assures each customer of the best possible compressor from all standpoints, for his product.

Each Tecumseh compressor is built to the same exacting standards of quality and incorporates the latest advancements in compressor design. All have more than the adequate oil supply, suction gas cooling of the motor and glass terminals. Moving parts are fitted to tolerances up to .002 for quiet, vibrationless operation under all conditions.

In the household refrigerator field, as in many others, Tecumseh opens the way to lower costs, more economical use of plant and steady improvement of product.



Model P1218
1/12 H.P.—285 BTU*



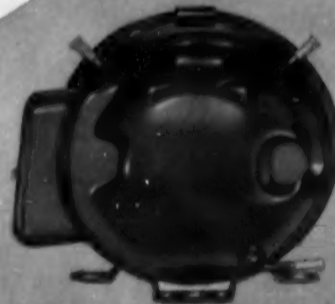
Model P91
1/8 H.P.—370 BTU*



Model P6112
1/6 H.P.—450 BTU*



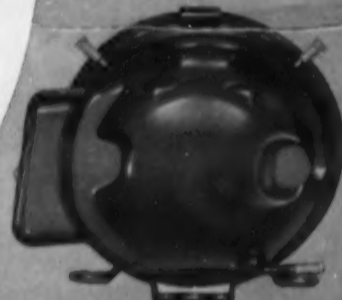
Model P5312
1/5 H.P.—620 BTU*



Model AP5111
1/5 H.P.—400 BTU*



Models
888 —1/8 H.P.—490 BTU*
884 —1/8 H.P.—570 BTU*
564 —1/8 H.P.—570 BTU*
86814 —1/8 H.P.—650 BTU*
85414 —1/5 H.P.—630 BTU*
84414 —1/4 H.P.—830 BTU*
84416 —1/4 H.P.—1030 BTU*



Model AP49
1/4 H.P.—1000 BTU*

* BTU RATING CONDITIONS: 130° Condensing Temperature
-10° Evaporator
90° Room Ambient

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For more information about products advertised on this page use Information Center, page 20.

Ansul Names Beacham Perfection Introduces In Sales Development Compact Heat Pump In 5 Capacities

MARINETTE, Wis. — Ansul Chemical Co. announces the appointment of Edward A. Beacham as



E. A. Beacham

senior engineer in the New Products Div. Refrigeration Sales Development.

Beacham comes to Ansul from the materials and processes department of Carrier Corp., where he was a senior engineer. Before going to Carrier, he had been a supervisor in the chemical engineering group of the works laboratory of General Electric Co. at Schenectady, N. Y.

In his new capacity, Beacham will assist in planning and executing sales development.

CLEVELAND—A new Perfection heat pump, "so compact that it fits into a closet," is now being introduced to home builders, architects, and heating contractors, according to Donald G. Wright, sales manager of Perfection Industries, a division of Hupp Corp.

"In the summer, this heat pump takes heat from the air in the home and puts into the ground, while in winter, heat is taken from the ground and put into the home," it was explained.

Perfection's entirely new and patented design "offers year-round comfort at lower cost that brings it within the reach of every homeowner," the company declared. "It is available in five



INSPECTING Perfection's new heat pump are Paul Moore, Illuminating Co. of Cleveland, and Chet Anderson of Decher Reichert Steel Co., northern Ohio Perfection distributors.

capacities: 2½, 3¾, 5, 6, and 7½ tons.

"Introduction of this heat pump is another important addition to a complete line of central heating and cooling units."

Automatic Shopping Centers--

(Concluded from Page 1, Col. 2) some of the test stores will be made completely automatic by installation of a battery of the machines—one each for groceries, dairy products, prepackaged meats, and prepackaged produce.

In other markets, partial automation will be achieved by installing electronic food dispensers alongside conventional shelves, the spokesman further stated.

One of two systems developed under the direction of Henry Longenbaker, head of the IGA store engineering department, and adopted for use in IGA stores, was displayed at the Waldorf Astoria hotel during the association's 30th annual convention.

This electronic merchandiser is about 8 ft. wide and 7 ft.

high. Food items, on shelves behind glass, are designated by letters and numbers.

To use the unit, the customer inserts a large, numbered metal key—received when she enters the store—in a slot and then punches the numbers and letters of the items desired.

Number Punched Tabulates, Totals Electronically

As the customer makes her selections, the amount of each item is tabulated and totalled electronically on a tape inside the key. As the selections are made, the items go to a box with the same key number.

The shopper presents her key bearing the total amount purchased to the checkout clerk. The clerk puts the key in a master slot, and a conveyor belt brings forward the carton containing the purchases. Sixty items from a selection of 154 can be assembled in 30 seconds, it was reported.

If the customer has forgotten an item, she tells the clerk. The clerk then pushes a set of selection keys to produce it.

Other System Lets Shopper Mark Cards at Home

The second system involves a series of shopping cards that the customer can mark in advance at home if she desires. Yellow cards are used for groceries, red ones for meats, and green cards for fruit and produce. The cards are placed in an electronic machine and the items delivered automatically within seconds by conveyors.

Claimed To Reduce Shopping Time 85%

The new automatic units will reduce shopping time for the average food store customer by at least 85%, it was estimated by Don R. Grimes, IGA president. Also, he said, use of the units should permit stores to reduce personnel on Saturdays, Sundays, and evenings, cutting distribution costs and freeing thousands of clerks from work at the less desirable periods.

Grimes further stated that while the trend today is toward fewer but larger stores, "the new automatic store will have a tendency to substantially reduce the size of all food stores."

Estimates Fully Automatic 30 by 30 Ft. Store To Cost \$175,000

The IGA reportedly estimated that a 30-ft. by 30-ft. fully-automatic store could be set up for \$175,000—\$50,000 less than an average conventional supermarket.

"The automatic store units," Grimes predicted, "will be widely used throughout the country within a short time by conventional food stores to accommodate customers after store hours and on Sundays. These units will be placed in front of a supermarket and by inserting coins in slots, the customer will have a wide selection of items."

Grimes said the first units will be installed in the New York, Chicago, Seattle, Salt Lake City, Minneapolis, Detroit, Boston, Baltimore, Tampa, Cleveland, Milwaukee, and San Antonio.

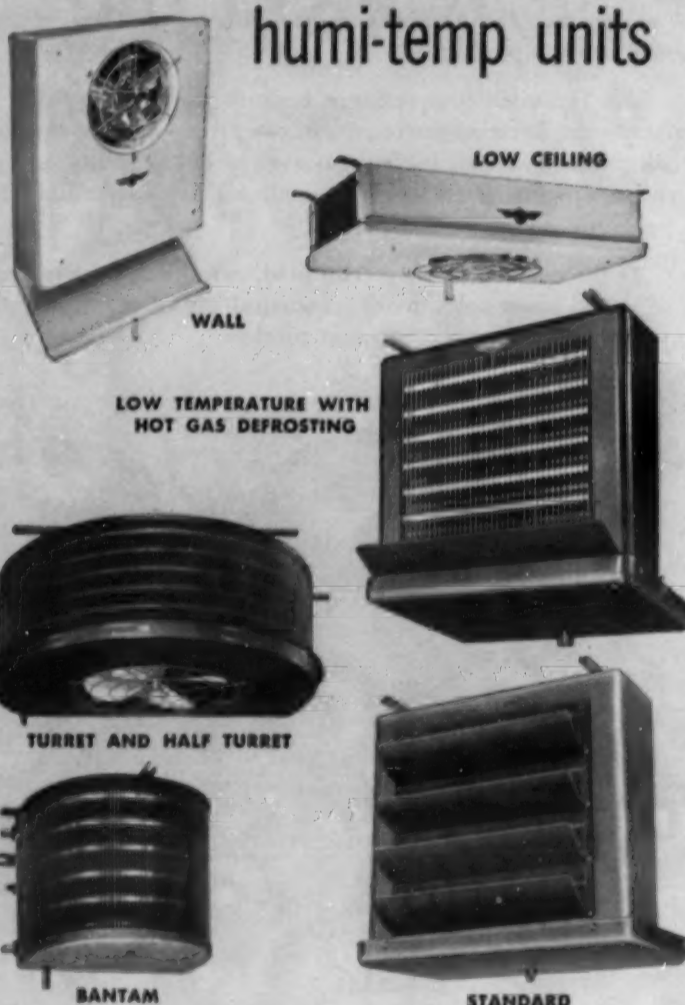
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Fully Soundproofed Hotel**370 Fan-Coil Room Units Operate Off Noiseless Ducts To Air Condition Bldg.**

LA CROSSE, Wis.—For the first time in history a highway motor hotel will be completely soundproofed.

Located only 250 ft. from the heavily-traveled four-lane U. S. Highway No. 1 leading into Washington, D. C., the new \$5,000,000 Marriott Motor hotel will feature soundproofing—right down to the operation of its deluxe air conditioning system.

Quiet-Operating Cooling A 'Foremost' Consideration

According to the engineers for the 370 room project of Hot Shoppes, Inc., which is scheduled to open its doors for business later this year, the selection of quiet-operating air conditioning equipment was a foremost consideration in their overall soundproofing plan.

The air conditioning equipment, manufactured by The Trane Co., included three 125-hp. "CenTraVacs" (centrifugal water chillers), 370 "UniTrane" fan-coil room air conditioners, and "Climate Changers" (large air handling units).

Vibration-Free Units Provide 414-Tons Of Refrigeration

Operating at full capacity, the vibration-free CenTraVacs will provide chilled water to the UniTrane units at the rate of 414 tons of refrigeration.

All fresh air will be introduced into the air conditioning system through acoustically-lined ducts leading from the roof-tops of the hotel buildings. The soundproofed ducts will keep noise from filtering into the building and disturbing sleeping guests.

Even windows are specially constructed and consist of two panes of glass ($\frac{3}{32}$ and $\frac{1}{4}$ in. thick respectively) sealed in rubber gaskets and separated by a $\frac{1}{2}$ in. air space to check passage of sound waves.

Individual Control of Heating, Cooling Units

The room conditioning units will blend the fresh air with recirculated room air, filter it and distribute it uniformly and quietly. Guests will be able to control the degree of cooling or heating to suit their individual preferences.

Other soundproofing treatment afforded the motor hotel by the Marriott's architect and engineer called for specially designed soundproof wooden doors, landscaping to scatter and absorb sound waves, concrete slab roof and floor construction, and wall-to-wall carpeting in all rooms.

The Marriott builders estimate that the total additional cost of soundproofing the \$5,000,000 project will be approximately \$250,000.

To deserve the title as the "world's largest," Marriott's Motor hotel, in addition to its 370 rooms, will include parking space for 600 automobiles, a large Hot Shoppes restaurant, a 40 by 60 ft. swimming pool

and an extensive activities area.

Each of the eight Trane air conditioned buildings will consist of two stories, with the exception of the center five-storied "hotel unit," which will be elevator serviced.

One-hundred and twenty rooms will have Potomac River views. Deluxe rooms will fea-

ture cabanas, terraces, and views of the pool.

The Hot Shoppes drive-in hotel will combine the conveniences of a motor court with essential services of a hotel; including a filling station, souvenir shop, drug store, taxi stand, auto rental service, valet and laundry, and a Hot Shoppes restaurant seating 250. Outdoor dining around the pool will be an added attraction during Washington's long balmy season, it was stated.

The motor hotel was designed by architects Joseph G. Morgan and Edwin Weihe.

Fruchter Appointed Gibson Distributor

PHILADELPHIA — Adolph Fruchter & Sons has been franchised as a distributor of Gibson commercial and residential air conditioning equipment in 20 counties of southern New Jersey, eastern Pennsylvania, and Delaware, H. L. Fruchter announced.

A new air conditioning department has been organized and is headed by Leonard Fruchter, he said. Sol Raefsky, formerly with Jordon Refrigerator Co., is sales manager.

Dravo Names Moreland Division Controller

PITTSBURGH — William J. Moreland, Jr., has been appointed controller of Dravo Corp.'s Machinery Div., the company announced recently.

Moreland joined Dravo in 1940 and has served in various accounting and administrative capacities.

Dravo's Machinery Div. manufactures industrial warm air heaters, crane cab conditioners, and other products, it was explained.

1906



Fastest communications system of the times... the crank-type wall telephone, complete with party line. Engineering at its peak! First Brunner-engineered product was built in 1906.

TODAY — past performance assures a future of promise

GO BRUNNER for the most dependable refrigeration and air conditioning condensing units!

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THE BRUNNER CO., SAINTSVILLE, GA.
IN CANADA: BRUNNER CORP. (CANADA) LTD., TORONTO, ONTARIO



Brunner open-type refrigeration condensing unit with new NR series compressor, 10 H.P. through 100 H.P. Other units from $\frac{1}{4}$ H.P. Brunner manufactures the most complete line of condensing units available from a single source.



Inside Dope

By GEORGE
F. TAUBENECK

(Concluded from Page 1, Col. 1)

Hot weather causes them to be extremely uncomfortable, reports John M. Price, editor of the *Paraplegia News*.

Price, a quadriplegic himself, points out that for these unfortunates, an air conditioner is a real necessity.

Hopefully, he writes, "If their automobiles were air conditioned, they would be able to travel

in summer without discomfort. "I have one in my car," he adds, proving that he knows what he is talking about.

Price, through his little monthly newspaper, speaks for and to the Paralyzed Veterans of America and the National Paraplegia Foundation. His readers are those who are devoted to "wheelchair living" as they good-humoredly call it.

Both civilians and veterans, these people are bravely making their own way in the world; earning their living at skilled jobs.

Some even run a business.

An outstanding example is W. C. MacFarlane, president and general manager of the Minneapolis-Moline Co., third largest farm implement manufacturer.

Says he: "After all, you don't run a business with your feet."

And you may remember Franklin D. Roosevelt.

However, for each such big success, there are many others who are not so fortunate. And they, too, would like very much to be cool in summer.

Maybe, this is something that big-hearted people in our industry might want to look into, at the local level.

Practical Benevolence

Roy C. Ingersoll, president of Borg-Warner, writes that he has inaugurated seven scholarships "to develop engineering, manufacturing, and business leadership for industry."

High school seniors who combine academic and technical excellence with qualities of character and leadership are eligible to apply for these scholarships. Recipients of the scholarships will receive up to \$750 to cover full tuition at the Illinois Institute of Technology.

These lucky young men will

be eligible to apply for a renewal of their scholarships each year.

Also these scholars may, if they wish, apply for summer employment in one of the Borg-Warner divisions or subsidiaries to supplement their finances.

Application for these scholarships should be addressed to Chairman of the Scholarship Committee, Illinois Institute of Technology, 3300 S. Federal, Chicago, Ill.

Another Good Program

And a program of scholarships and awards to teachers in the Newton, Iowa, school system, where plants of the Maytag company are located, is interesting, also.

The Maytag people (who are now in the refrigeration-freezer business) have set up five travel scholarships of \$200 each for approved local schoolteachers. In the case of a European tour, up to three of the scholarships will be doubled.

Two summer school scholarships of \$300 each are also included in the program.

Four grants of from \$100 to \$300 toward convention expenses are provided for teachers planning to attend regional or national meetings in their special areas, plus \$600 for the appearance of outstanding specialists at local teachers' conferences. Tickets to a cultural attraction within driving distance of Newton will be provided each Newton teacher.

A "Distinguished Teacher Award" will be presented to a teacher nominated by a special committee, based on educational contribution to the children of Newton, service to the community, service to the local group of teachers and service to the cause of education in general. In addition to a plaque and certificate, the winner will receive a life membership in the professional teachers' organization of his or her choice.

While Maytag provides the means, it will leave the selection of recipients to an awards committee of educators, who will pass on applications and report their selections to the trustees.

Leave 'em Laughing

Unedited note from a country correspondent to Wallace Morgan, northwest editor, Duluth (Minn.) *Herald and News-Tribune*.

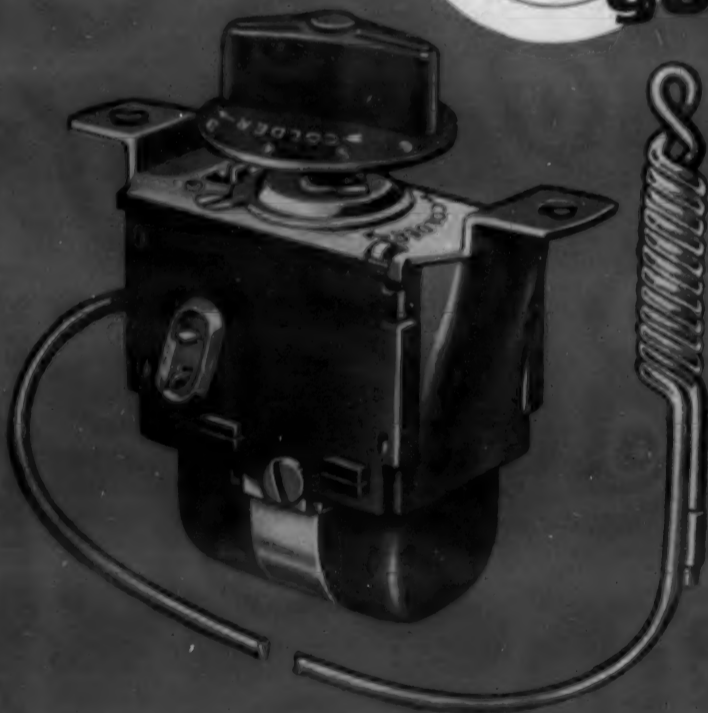
"Will you please try and put this write ups all in and please do not leave the nite of the meetings out. This morning the Luther League May Basket party at the Trinity, is tonite, and it didn't say when it was to be. And I was called on it the first thing this morning. Because they planned on having a large crowd. and those who were not in church Sunday. didn't know they planned it for tonite. but was about the only nite they could get it in. The teacher dinner was to be at Central high, but at the last minute had to be changed. on the account of something else. So please get that in. for I sent it as soon as I got it. The ladies in charge of it is from Blank. except Mrs. Ton Jones, who is from Oakton, and Mrs. Smith. is the Principal here. So hope you give them a nice write up."



Every 3 seconds...

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goes into service



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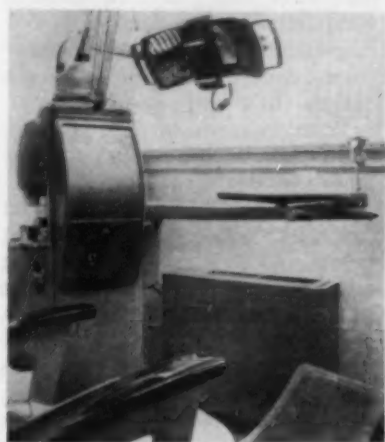


Ranco replacement reference

No. 1644 lists nearly 5,000 Ranco Replacement Control applications, most complete line in the industry. Buy your copy from your Ranco Wholesaler. (Not available from factory.)

World's largest manufacturer of refrigeration controls

Fan Coil Remote Year-Round Units Chryslers, Trips to Bermuda Awarded Permit Zone Control, Need No Ducts 33 In Pre-Season Room Unit Contest



DESIGNED for small office buildings, hotels, motels, apartment houses, hospitals, or residences is the new Carrier Corp. fan-coil "Room Weathermaker." Available in capacities from 1/2 to 1 1/2 tons, units may be individually regulated.

SYRACUSE, N. Y. — Two newly-designed lines of "fan coil" air conditioning units featuring flexibility and economy of installation are announced by Carrier Corp.

They use remote sources of refrigeration and heat and permit individual zone control of temperature year around, plus dehumidification, air circulation, filtering, and ventilation.

The new products are trade named "Room Weathermaker" and "Unit Weathermaker." They are available in cooling capacities for 1/2 ton to 1 1/2 tons and air handling capacities from 200 to 600 c.f.m. Centrifugal fans and multi-speed, life-lubricated motors are used on all models.

Use Either In Direct Expansion System or Chilled Water Circuit

The new equipment may be employed in either a direct expansion system or chilled water circuit. No ductwork is required to bring cooling from the source.

The Room Weathermakers may be tied into "wet heat" systems replacing radiators to provide both cooling and heating in residential and commercial buildings.

They may be recessed completely into the wall underneath a window with the top serving as a window sill and the front flush with the wall.

Vertical or Horizontal Installations Possible

Or they may be hung on the wall, or be mounted on legs. The same unit may be furred into the ceiling or suspended from the ceiling. Vertical or horizontal installations are possible because of an insulated "L" shaped condensate pan.

Special wall panels and discharge grilles which may double as window sills for furred-in applications, or wrap-around cabinets for partially recessed or in-the-space installations are available.

Fabricated of 18-gauge steel, panels, grilles, and cabinets are given a prime coating of sand grey paint, ready for finishing.

The temperature control knob may be located at either end of the unit. A damper attachment is available as an accessory for "in-between season" ventilation or for regulation of outside air.

Two centrifugal fans are em-

ployed in the larger sizes and one in the smaller model. Made of aluminum, the fans are non-corrosive and light in weight.

The new Unit Weathermakers are particularly adaptable for installation high on the wall, behind a false ceiling or wall, in the top of a closet, or over an entrance with the unit supplying air directly into the conditioned space.

Refrigerant for direct expansion operation, or chilled or warm water may be circulated through pipes from a central cooling or heating plant to the Unit Weathermaker's large specially-designed coil made of copper tubes wrapped with aluminum fins. Directly behind the coil and return air mixing chamber is a centrifugal fan.

DAYTON—Major prize winners in a recently completed room air conditioner sales contest were announced recently by Airtemp Div., Chrysler Corp.

"Operation Chain Reaction" opened in February and ended in May. It produced three winning distributor sales managers and 30 distributor salesmen.

M. T. Bard, Airtemp room air conditioning sales manager, commented, "Our pre-season room unit shipments to distributors and distributor dealers topped records."

Victorious sales managers, who each received a fully-equipped Chrysler New Yorker St. Regis, are: George Webster, Wilson Supply Co., Inc., Washington, D. C.; Wayne Wicklund, V. J. McGranahan, Inc., Dayton;

and Gordon Campbell, McGranahan Distributing Co., Toledo.

Distributor retail salesmen winning trips to Bermuda are: L. B. Mangione and Robert Jacobson of Electric Supply Corp., Chicago; Henry Goldfine and Joseph Tindstruth of Wilson Supply Co., Inc., Washington, D. C.; G. C. McCalister and P. J. Kanistros, V. J. McGranahan, Inc., Dayton.

Joe W. Vaughn, Steel City Supply Co., Inc., Birmingham, Ala.; Frank Hager, Thomas Pikes, and William Koehler of Arnold Wholesale Corp., Cleveland; James F. Sanders, Straus-Frank Co., Houston; William Skelton, Johnson Electric Supply Co., Cincinnati.

George Furry, Richard Watson, Donald Harpster, Newell

Young, and Wayne Collins of McGranahan Distributing Co., Toledo; Robert Farrar, Southern Refrigeration Corp., Roanoke, Va.; William Moore, Conditioned Air, South Bend, Ind.; Elmer Stone, Boulder Parts Corp., Green Bay, Wis.

Robert Adams, Banks-Miller Supply Co., Huntington, W. Va.; Joe Schweiger, Independent Distributors, Inc., Denver; Ralph Dusenberry, Ralph Dusenberry, Inc., Yuma, Ariz.; Jake Knox, Virginia Parts Corp., Norfolk, Va.

William Hoffmann, National Sales Co., Buffalo; Floyd Shapiro, Shapiro Distributors, Inc., Newburgh, N. Y.; E. Stanley Osborne, Ashburn Supply Co., Culver City, Calif.

Palmer McMahan, Furste Auto Supply, Inc., Mattoon, Ill.; J. T. Coleman, Union Hardware & Metal Co., Los Angeles; and Wally Camp, Kremser Wholesale Co., Inc., Clarksdale, Miss.

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			2845 Walnut St.	

Proper Refrigerator Zone Use Adds to Food Life

CINCINNATI — Do today's 52nd annual meeting here.

household refrigerators fail to provide proper storage conditions, or is the customer failing to take advantage of the gains the industry has made?

Divergent opinions on these and other questions were aired during the Domestic Refrigerator Engineering Conference held by the American Society of Refrigerating Engineers at its

Willie Mae Rogers, director of Good Housekeeping Institute, cited tests and comments to show that some makes of refrigerators did not meet conventional requirements for temperature and humidity although "in general temperatures were acceptable."

But Gene F. McConnell, project manager for Whirlpool-

Seeger Corp., declared:

"Since the optimum storage temperatures and humidities for various foods cover a wide range, it has long been the aim of the refrigerator industry to provide several zones within the refrigerator, each designated for certain foods."

Customers Misuse Zones Provided

"The industry has been more successful in providing the zones than they have in getting their customers to utilize those zones for the purpose designed," McConnell said.

"The stories are legion about misappropriation of space. One that comes to mind concerns a recent survey by our home economics group. They found dampened clothes, cosmetics, girdles, and angora sweaters in

refrigerators checked in 25 homes in our area," he disclosed.

In reporting studies made at the Good Housekeeping Institute, Miss Rogers commented that the "wide variance in temperatures within the industry would indicate there are no standards of storage temperatures accepted by you engineers. But there are recommended standards," she reminded the conference, "such as those of ASRE, U. S. Department of Agriculture, food producers, etc."

"We've been running load tests on refrigerators for about a year, simulating the actual use of a refrigerator in the home. We keep the room at 90° and 50% r.h. with the refrigerator control set at the coldest point possible without freezing. "We have found about 15°

fluctuation in refrigerator temperatures and 12° in freezer compartments. In general," Miss Rogers admitted, "temperatures were acceptable, but in six makes they were not."

Temperatures in door shelves were generally too high—above 50°, she declared.

Such shelves are often used for milk, which should be kept below 45°, and eggs, which authorities say should be kept at 40° to 42°, Miss Rogers commented. She also cast some doubts about storing of eggs in door shelves regardless of temperatures: "So much jarring as doors are opened and closed deteriorates eggs."

Butter compartments came in for questioning, too.

"Butter should be kept at 40° to 48°," Miss Rogers declared. "Butter at 60° to 70° doesn't keep long. Perhaps butter compartments should be designed to hold only one day's supply," she suggested.

Crisper temperatures, which were found at 50° or higher, should be maintained between 40° and 50°, Miss Rogers said.

Freezer Temperatures Found Satisfactory

"Freezer section temperatures were generally satisfactory, but there was too much fluctuation, and there are still some where the temperature is too high in some locations," she commented. "While frozen foods can be stored safely two or three weeks at 0° to 15°, for longer storage 0° or below is required."

Humidity conditions inside refrigerators were "generally satisfactory," but "at room temperatures of 75° and 25% r.h. there are many complaints of food drying out," Miss Rogers said.

Comments Passed Along

Comments made by home economists throughout the country also were passed along by Miss Rogers to the engineers:

"Too many gadgets. Construction flimsy. Too difficult to keep things clean."

"Too much plastic. Cracks too easily. Too flimsy."

"Clarify difference between freezer sections and evaporators."

"Automatic defrosting still causes much confusion among users."

"Great demand for a specific meat tray in every refrigerator."

"Don't keep milk and beer cold enough."

Regarding color, Miss Rogers commented that the "actual market seems limited to project builders or those remodeling their kitchens."

In summarizing, Miss Rogers said, "it is startling how many women say, 'I wish I had my old refrigerator back.'"

"Beauty and convenience are highly desirable for the initial sale, but good performance keeps a refrigerator sold," emphasized McConnell in reviewing current design problems.

"To provide proper temperatures and humidities, the refrigerator needs a good rate of recovery under medium and heavy loads as well as safe minimum temperatures under light

(Concluded on next page)

"A CASE OF COOL JUDGMENT"



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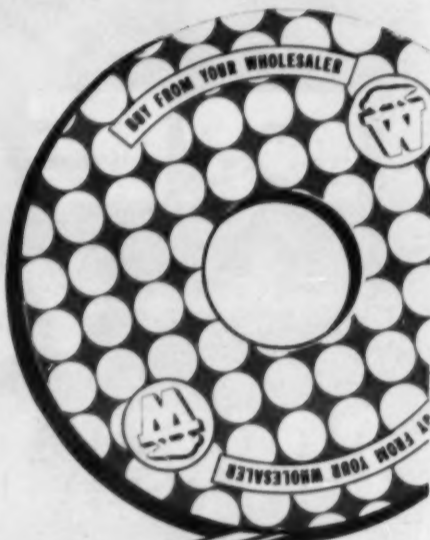
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For more information about products advertised on this page use Information Center, page 20.

Refrigerators --

(Concluded from preceding page)
loading," explained the Whirlpool-Seeger project manager.

Many Varied Tests

"The tests to determine whether a design will operate properly under service conditions are many and varied—70° and 110° F. no-load, pull-down, ice freezing, load recovery, internal and external condensation, defrost, water evaporation, heat leakage, taste and odor, minimum starting voltage, noise level, and cabinet humidity recovery are some of them," McConnell said.

"Cooling surfaces in refrigerators were somewhat standardized as to configuration as long as the 'U' and 'horizontal' type evaporators were used, and the materials were mostly stainless steel, brass, or plain steel sheet sandwiches, in many cases porcelainized," he recalled.

"The general food storage cooling surfaces have now changed mostly to aluminum tubing, aluminum tubing on aluminum sheet, and expanded aluminum sheet."

McConnell continued, "The job of bringing all the elements into balance is a challenging one. Good evaporator design, for example, requires adequate cooling surface, good oil return, minimum frost-out, quick load pickup, complete defrosting (if automatic), complete defrost water collection and disposal.

Food Habits Have Changed

"The food buying and eating habits of the nation have changed considerably in the last 10 years," he pointed out. "The rise in frozen food consumption alone has brought storage space for that type of food to 50% or more of the total storage volume in many refrigerators.

"Kitchen layouts are changing constantly, as in the present trend to built-in appliances."

Lower storage temperatures for frozen foods, larger refrigerators, and increased door openings have accentuated the problem of internal condensation, according to R. E. King of General Electric Co.

"Whenever a refrigerator door is opened and an area is exposed whose temperature is below the dewpoint of the ambient, condensation will take place," explained King, who is engineering manager, advanced engineering, of G-E's Household Refrigerator Dept.

"That is axiomatic. The amount of condensation depends on the area exposed, the temperature of the interior, the frequency of door opening, and the amount of moisture in the ambient air.

The problem of internal condensation is one to be lived with since the elimination of it appears to be improbable.

"Whether or not condensation appears in a refrigerator is of little or no consequence so long as it does not disturb the customer," he observed. "Should this occur the results are very disturbing.

"Refrigerators designed and built 25 years ago did not have serious internal condensation problems," King declared.

"These refrigerators were designed to meet the requirements of that day, namely, to preserve fresh foods, cool beverages, and freeze water into ice cubes. The evaporator temperature was usually 20° F., and the size of the cabinet usually smaller.

"With the public acceptance of frozen foods, which introduced lower temperatures of the evaporator and changes in the configuration of cabinets, the internal condensation problem has become real," King commented.

"In order to understand the amount of condensation that can be expected in a 24-hour period in refrigerators from 8 to 12 cu. ft. in volume, data taken under control conditions becomes interesting. If the cabinet door is opened 96 times in a 16-hour period when the cabinet is in an ambient of 90° F. with 75% r.h., 1½ to 2 lbs. of condensate will appear in the cabinet which must be disposed of," he said.

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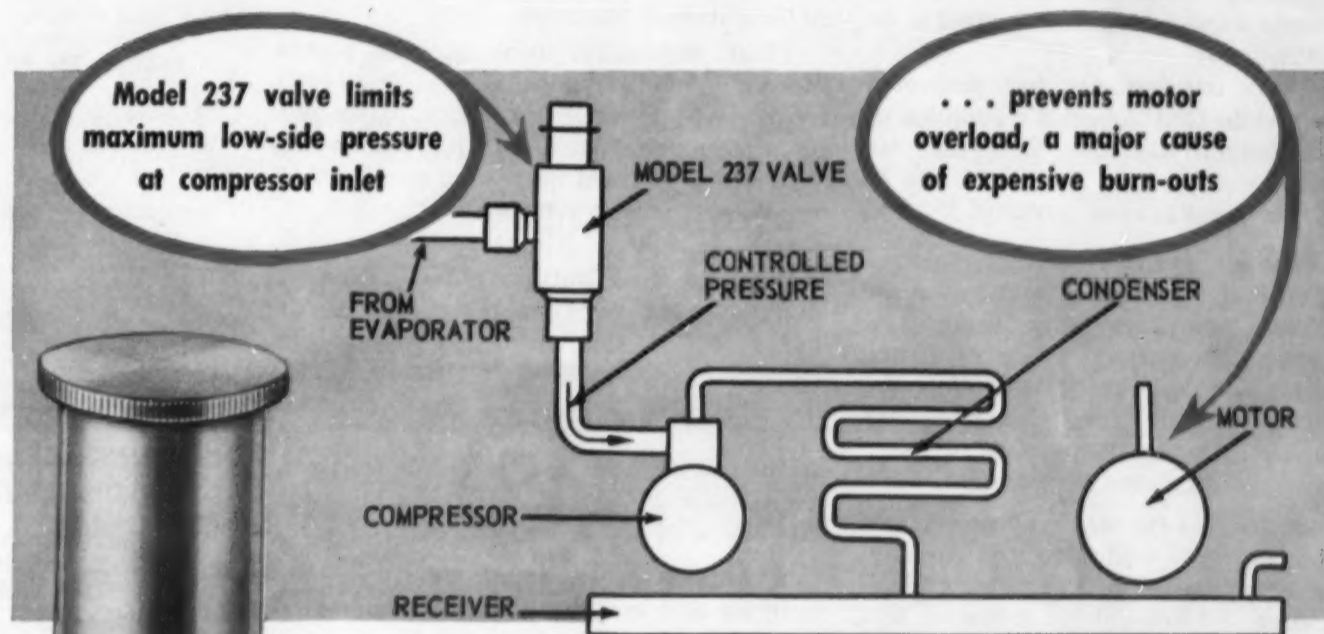
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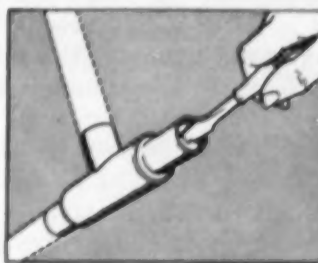


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AIR CONDITIONING & REFRIGERATION **NEWS**

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"I have always felt that whatever the Divine Providence permitted to occur I was not too proud to report. The people are not served by pussyfooting, or by that sort of journalism in which nobody will ask who is the editor of a paper or the writer of an article, and nobody will care."—Charles A. Dana.



'DISHONEST' DEALINGS DRAW DISTRIBUTOR'S IRE

National Association of
Electrical Distributors
290 Madison Ave.,
New York 17, N. Y.

Editor:

I believe that a manufacturer has an inalienable right to sell and distribute his products through any trade channel or firm that he elects. He may distribute his goods through a broker or he may sell them through an agent who by-passes the wholesaler. He may—for example—serve the Texas, Florida, and West Coast markets by selling to brokers in New York for direct shipment to those far-off territories.

But, in my opinion, no manufacturer can live on this type of distribution from coast-to-coast. He can't live on it because it forces him to perform the distributing functions, and

he simply can't do those functions as economically as the full-fledged wholesaler.

It seems to me that it thus becomes a matter of honesty.

I think it is dishonest for the manufacturer to ask wholesalers to take the risk of putting their money into facilities and equipment; to build an organization and encourage them to hustle business in an area; to assume the responsibility of having employees working for them who depend on that wholesale business for their livelihood and, at the same time, adopt a program that misleads those wholesalers.

I think it is dishonest for a manufacturer to talk about a wholesaler policy and, at the same time, cooperate in a sales or promotion program that skims the cream out of a territory where a wholesaler has invested his money to do a job for

(Concluded on next page)

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Water Scarcer Than Steel? It's Happening to Us!

Who'd ever guess that our nation's greatest thirst would be for water? Or that our supposedly limitless water supplies could become harder to get than steel is on certain occasions?

To be sure our industry has suspected for quite awhile that America's supplies of water are dangerously low. Everytime we turn around another city limits the use of water in air conditioning systems.

In school we learned that rainfall releases 4,300 billion gallons of water over the United States, on the average, every day. Some 1,300 billion gallons of this rain runs into streams and underground supplies; the rest returns directly to the atmosphere through evaporation and exhalation of water vapor by vegetables, we were taught.

Current demand for water by people and factories is only 185 billion gallons per day. This total breaks down into 88 billion gallons for irrigation, 80 billions for industry, and 17 billions for personal use. What happens to the rest of it? Good question.

The answer: Mismanagement of watersheds, pollution of ground-water, siltation of reservoirs, droughts, and heavy increases in industrial and human uses all are contributing to a national water shortage which is becoming more alarming every year.

In future years the per-capita demand for water will be growing, naturally. Today's city of 10,000 projectedly will have a population of 13,300 by 1960, and its daily consumption of water will have increased from 1,400,000 gallons to 2,067,000, municipal authorities figure.

Thus, the average municipality will have to increase its water distribution capacity quite a lot—especially if air conditioning continues its ballooning progress.

Furthermore, the President's Materials Policy Commission estimates a total industrial water consumption requirement of 215 billion gallons daily by 1965. Most industrial devouring of water is for cooling: in the

production of steel and synthetic rubber, in the manufacture of explosives and synthetics, and in the ever-growing number of air conditioned factories.

Food processors, meat packing plants, and pulp and paper mills also swallow a great deal of water (a large paper mill gulps more water each day than does a city of 50,000). A third major industrial use is for electric power generation.

Almost 40% of America's factories, according to the National Association of Manufacturers, record a reuse of water as high as 24% of their intake. The petroleum industry reuses 98%; aircraft, automobiles, iron and steel, 25%. Industrial air conditioning is pioneering stridingly in the re-circulation of water through cooling towers, etc. That's a step in the right direction, but only a step.

Expansion of municipal water pumping facilities is a genuine necessity—but again, it will be only a step in the right direction.

The big problem is, simply: we need more water than is available now or in sight.

Turning sea water into fresh water would seem to be a must, therefore, for our future progress. Laboratory costs of doing this are coming down, thank goodness, but much work needs to be done yet.

Although several methods of de-salting sea water seem practical, their present costs to users would be much higher than present charges for municipal water in most U. S. cities.

Those neediest seaboard cities, however, soon may find it expedient to install demineralization plants, even if the comparative costs appear excessive as of now.

New methods of extracting pure water from sea water are being studied avidly for obvious reasons.

Water—more water—may be the key to future progress of our nation, as well as to that of the refrigeration and air conditioning industry. Godspeed the scientists!

Looking at capital as the productive power potential stored up in machinery, an educated guess would put the American total somewhere in the neighborhood of six and a quarter billion horsepower. Of this, private industry and agriculture own only about one and a half billion. Public power sources have only around 75 million.

And the rest? You guessed it—the American consumer. At least 4.7 billion horsepower—more than twice the total of all other non-military power potential—is in the home, in the form of labor-savers from autos to electric razors or power lawnmowers.—HENRY FORD II.



OFF THE CHEST

(Concluded from preceding page) The format of your write up the same product manufacturer.

In other words, I think it is dishonest to allow brokers to supply goods to the big jobs in any area while distributors appointed to handle the same goods sit there with the manufacturers' items in their warehouses.

Only the manufacturer can clean up this situation. He has the choice. He must make the decision as to how and where his goods are to be sold.

It is a plain, simple matter of honesty for the manufacturer to declare:

(1) I can get better results by making my goods available to a market through the broker and, therefore, I would not want wholesalers in a market to put their money into my products. It would be dishonest for me to kid them about this. Or:

(2) He can decide that the wholesaler is the best, long-term, solid stable organization to accomplish the job of distributing his products all over the nation.

If he decides that the latter choice is the best for his company, he should then set and maintain a policy that does not permit a broker to make suckers out of the wholesale distributors he has appointed throughout the country.

Only the manufacturer can make this decision, and decide he must, if he is going to be honest with his distributors. He can't do business both ways, because the two are incompatible.

ARTHUR W. HOOPER,
Executive director

DETAIL DELIGHTS DUTIFUL DEVOTEE

Fort Worth Air Conditioning
Association
Fort Worth, Texas

Editor:

In the June 4 issue of the News you had a write up on our pamphlet "How To Check For A Quality Air Conditioning Installation," which we prepared for distribution at the recent Home Improvement Show.

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Buenos Aires, Argentina

Editor:

I am writing to you with the hope of obtaining some information that I thought might be found in your 1955 Directory.

I would like to know whether it is possible to purchase "standard" designs of a home air conditioning unit. It is not possible to import these sets, and it is believed that at least two years will pass before the exchange situation is sufficiently improved to allow such imports.

As sealed units are being made locally (under U. S. licenses) the main part of such a unit is available, but I would like to know what are the other

necessary controls—humidity, temperature, etc.—and what are the makes of these controls—quite a few are imported, these being given permits.

If you can recommend any firm that sells such designs, I should be very grateful.

ALEX R. MILNE

PLAINTIVE PLEA FOR PLASTICS PUBLICITY

Rexton Finishes, Inc.
Irvington, N. J.

Editor:

Your editorial of June 25, 1956 relative to the use of plastics in the refrigeration field is certainly stimulating and thought provoking. An excellent article.

We here at Rexton have come up with a development that further enlarges the scope of plastics. This development has received widespread publicity but not as yet in the refrigeration field. The development that we

speak of is the successful coating of thermo-setting plastics with a chip-proof, corrosion, chemical, and heat resistant epoxy enamel.

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Editor:

We enjoy being subscribers to AIR CONDITIONING & REFRIGERATION NEWS. Your paper has been instrumental in keeping up with the various events that are occurring daily in the industry.

Your editorial of June 18 is hard hitting and true as these barriers do exist. Only through facts and figures of actual costs can these barriers be broken down. Print more of the same plus more of actual costs.

JOHN B. BULLINGER

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Always quick to take advantage of the latest technological advances, Westinghouse selected Olin Roll-Bond evaporators which utilize a revolutionary new principle of tubes inside a single seamless sheet of aluminum.

By eliminating all of the maze of low conductivity welds and tubing formerly a part of evaporator construction, Olin Roll-Bond pays off in lower cost cooling, easy cleaning and a life-time of leakproof refrigeration.

Applicable to many other fields, Olin Roll-Bond may well be the answer to any problem requiring internal systems.

Write to Olin Roll-Bond,
Olin Mathieson Chemical
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complete details on this
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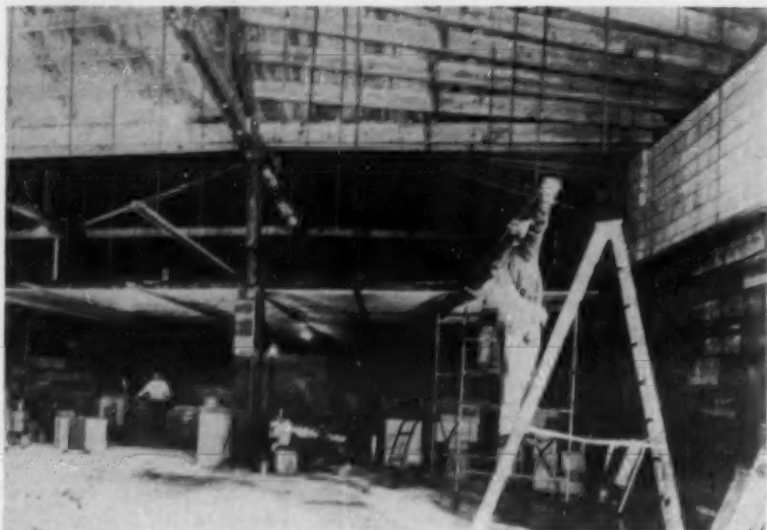
EAST ALTON, ILLINOIS

Special Insulation Aids Market Hold Freezer Room Temperature to -20° F.

TOLEDO—Typical of the extensive construction of freezer areas now under way in the food industry is the room in the recently completed warehouse of Joseph's Super Market here. Designed for temperatures ranging to -20° F., the Joseph's freezer room is 140 by 40 ft. and 11 ft. high, one of the largest in the Toledo area with a capacity of more than one million pounds of food. Significant additions have been made, in recent years, to space allotted to these areas due to the increasing popularity of prepackaged frozen foods. The refrigeration equipment, "Armaglas" ("Fiberglass" cold storage insulation manufactured by Davison Associates of Toledo, has a capacity of 30 tons. The compressor was manufactured by The Brunner Mfg. Co. and the "Thermobank" evaporator by Kramer-Trenton Co.

8-In. Insulation Applied

Eight-inch thicknesses of "Armaglas" ("Fiberglass" cold storage insulation manufactured



WORKMEN are shown installing the steel deck suspended ceiling where two layers of Armaglas (Fiberglass cold storage insulation made by Owens-Corning for sale by Armstrong Cork Co.) were applied in hot asphalt and connected to the wall insulation with broken joint construction in Toledo.

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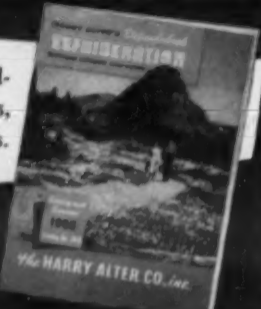
The HARRY ALTER CO., INC., 1717 S. Wabash Ave., Dept. A, Chicago 16, Ill.

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Mr. Dealer . . .

flake ice will put you in the chips!

2 New Koch Units! Flake Ice in the Produce Department... or in the Back Room for Economical Operation.

Here's a gold mine for alert dealers. Now you can provide a unit to fit their needs—whether they prefer the ice right in their produce department or in the back room. They're money makers for your customers, too—they know the value of flake ice in markets, institutions, and restaurants . . . for the display, preservation, and processing of foods and perishables.

Units are compact, and engineered so no moving part is refrigerated, and no refrigerated part ever moves.

Series 4000, illustrated at the top, is a remote ICER that features a mobile bin, which pulls out and rolls to any section of the produce department. It's a perfect match for Koch SELL-O-VISION produce merchandisers; takes only 3 feet in the line-up, and banishes forever messy ice hauling, slushy floors, and wet clothing. 600 and 1000 pound capacities.

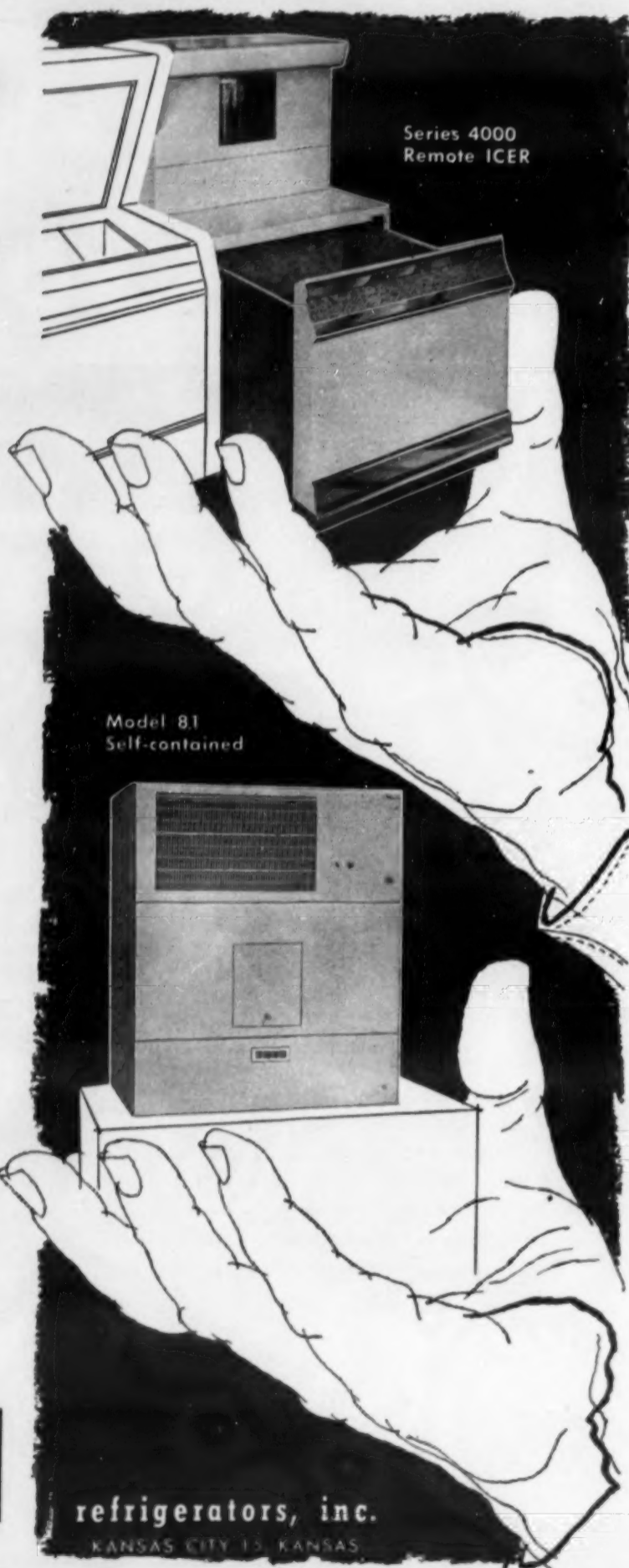
Series 80 is a self-contained ICER that is streamline styled and amazingly compact—a real work-horse designed to fit any standard bin for preferred back room location. Available in either of two popular air-cooled sizes: 600 and 1000 pounds per day.

Write or Phone

KOCH

refrigerators, inc.

KANSAS CITY 13, KANSAS



Series 4000
Remote ICER

Model 81
Self-contained

by Owens-Corning Fiberglas Corp. were applied in floors, ceilings, and walls.

Masonry surface walls were back plastered and then primed with a vapor barrier paint. Two layers (each 4-in. thick) of Armaglas were then applied in hot asphalt and the inside was finished with cement plaster.

Ceiling Is Suspended Galvanized Steel Deck

The ceiling is a suspended 18-gauge galvanized steel deck dropped from structural members on steel rods. Two layers of Armaglas were applied in hot asphalt on this deck and connected to the wall insulation with broken joint construction.

The floor insulation was applied in hot asphalt and finished with a 3-in. concrete floor.

Oscar Joseph Stores, Inc. (more familiarly known as Joseph's Super Market), "currently is one of the most aggressive, fastest growing small chains in the middle west."

Four supermarkets, all built since 1945, are located, three in west Toledo and one in north Toledo. Joseph's is constructing its fifth in Toledo's east side.

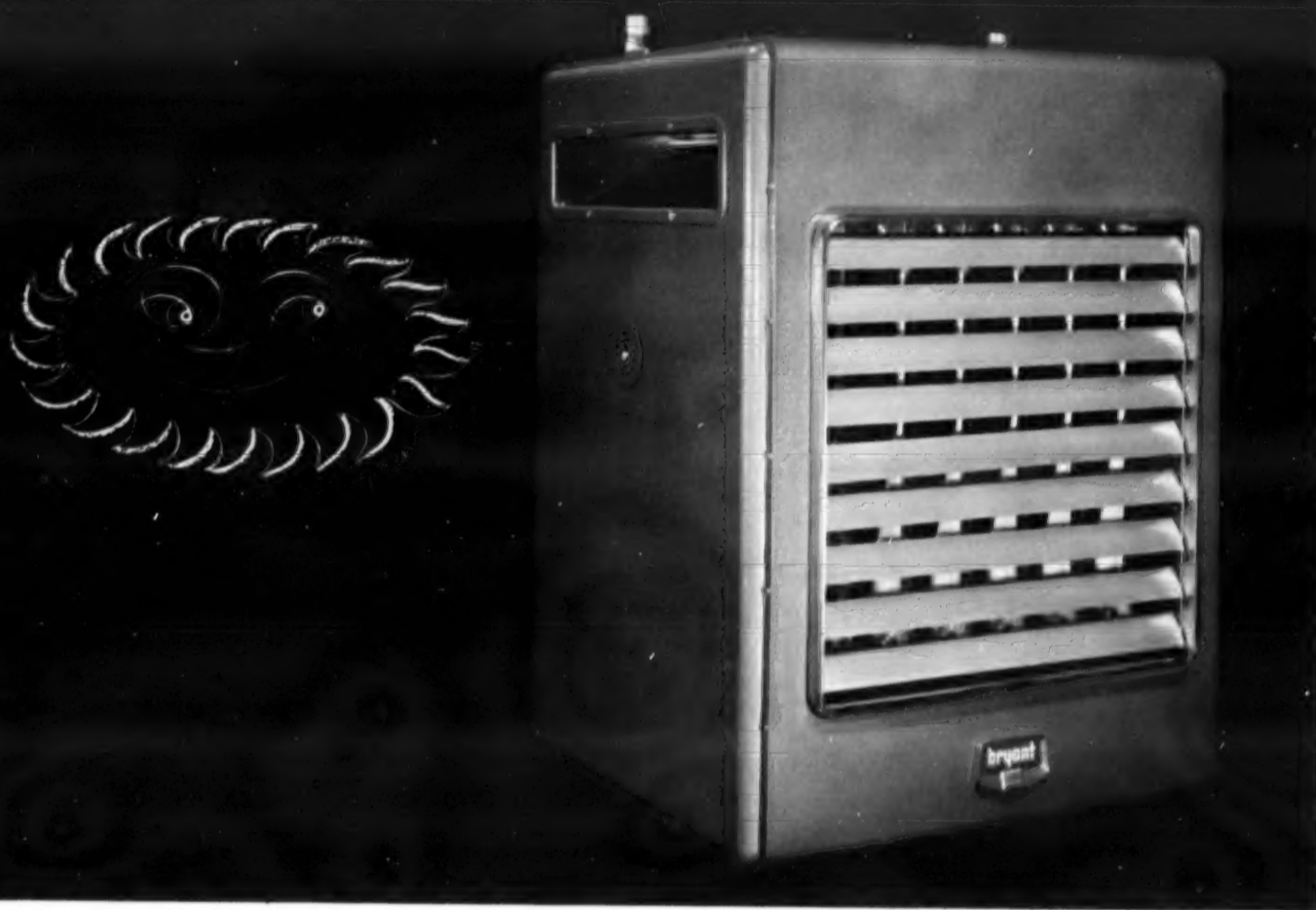


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Full-color, flip-over chart talks, designed with plastic envelopes so you can completely localize your sales talks. Exclusive "F.O.B." handbooks. Survey forms, etc.

**3 bryant SALES and SERVICE CLINICS**

Field and factory-trained crews, with years of practical experience, hold sales and service clinics in or near your own city to help you sell and service better.

**2 bryant ADVERTISING and SALES PROMOTION HELPS**

complete newspaper ad mats for all products. Excellent displays. Direct-mail programs. Complete promotion packages. Everything to help you promote locally in your city.

**4 bryant BUDGET PLAN**

Gives you the best credit facilities available with these customer inducements: no money down, low monthly payments, 3 full years to pay and many others.

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3. *Highest quality* heating, cooling and water heating equipment made.
4. Bryant BUSINESS DEVELOPMENT PROGRAM.
5. *Sales tools* that increase your sales and profits.
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bryant

Physiological Study Shows

Heat Regulators Let Healthy Humans Adjust Quickly, Easily, Safely to Outdoor Air on Leaving Air Conditioned Places

CHICAGO — "In relatively uniform environments most sedentary or slightly active healthy women and men are comfortable the year-round when the dry-bulb air temperature is within the range of 73° to 77° F. and the relative humidity is within the range of 25% to 60% at air velocities of about 25 f.p.m.," says Prof. M. K. Fahnestock of the University of Illinois.

He emphasized this point in discussing "Physiological Adjustments, Environment, and Comfort" at the first technical conference staged by the National Warm Air Heating and Air Conditioning Association which was held here recently.

"Although additional data is needed to fix the range of air velocities which are satisfactory for comfort heating and cooling, existing data indicates that air velocities above 40 f.p.m. are unsatisfactory, especially in comfort cooling," Prof. Fahnestock commented.

'Shock' Bugaboo Disproved

He also disposed of the old "shock" bugaboo associated with air conditioning.

"Years of practical experience and laboratory studies show that the adjustments in the heat regulatory mechanisms of the bodies of healthy people, on entering and leaving air conditioned spaces, are prompt, easy, and safe. Therefore, in general, indoor conditions can be maintained at comfortable levels without regard to the outdoor conditions and without affecting the health of the occupants," asserted Prof. Fahnestock.

Normally Man Maintains Relatively Constant Temperature

Reviewing extensive laboratory studies, he pointed out that "man is a homeotherm or warm-blooded animal whose body under normal circumstances remains at a relatively constant temperature.

"Heat produced within the body must be transported to the surface and transmitted to the surroundings. Heat production varies somewhat with the age and sex and greatly with degree of activity or rate of doing physical work," he said.

"The human body has the phenomenal ability to regulate the temperature of its external surfaces over a range of several degrees as a means of maintaining a balance between heat production and heat loss. This is accomplished," explained Prof. Fahnestock, "by the physiological control of the rate of flow of blood through the skin and sub-jacent tissue.

Explains Heat Production, Loss

"In maintaining a balance between heat production and heat loss, sensible heat is transmitted to the surroundings by radiation and convection, and

latent heat is transmitted by evaporation. The environmental factors of temperature, humidity, air motion, and surrounding surface temperatures affect these modes of heat transfer, and are, therefore, the factors affecting thermal comfort.

"The thermal comfort demanded by people today requires more than a balance between body heat production and heat loss," the expert said.

"Certainly an environment which results in sweating in order to maintain a heat balance is unacceptable," he said. "The balance must be maintained without a feeling of warmth or coolness and with-

out a consciousness of the vasomotor regulation of skin temperature. Also, the velocity of the air must not be disturbing.

"Field experience and laboratory data show that in the range of environmental conditions encountered in comfort heating and cooling the influence of humidity on thermal comfort has been over-emphasized," commented Prof. Fahnestock in citing the 25% to 60% range as satisfactory.

Reco Names Harris To Production Post

NEW YORK CITY—Appointment of R. Jay Harris as application engineer and production manager of Reco Sales & Engineering Corp., has been announced by Murray Weissman, executive vice president. Harris will be located at 150 Nassau St., New York City.

2 Distributors Named By Gibson Heating, Air Conditioning Div.

GREENVILLE, Mich. — Two new distributor appointments were announced recently by Earl Palmer, manager of Gibson's Air Conditioning & Heating Div.

Hafliger & Tobias Appliances, Pekin, Ill., will distribute Gibson equipment in Stark, Marshall, Peoria, Woodford, Tazewell, McLean, and Logan counties in Illinois. J. E. Hafliger and C. K. Tobias are principals in the company.

M & R Air Conditioning Corp., Brooklyn, has been franchised for the counties of Kings and Queens in New York. Theodore A. Reina is president of M & R Air Conditioning Corp., and Emil J. Merenda is vice president.



The man shown above is using live steam to remove every vestige of dirt and scale prior to applying Halstead & Mitchell protections which withstand both rusting and all present day water treatments normally recommended for cooling towers and condensers. These unusual protections are used *only* on Halstead & Mitchell's Cooling Towers.

First protection is Vinsynite. Vinsynite works twice—it phosphates the metal, stopping rust dead in its tracks, and it forms the perfect adhesive base for paint coats to follow.

Vinyl Zinc is then applied, and vinyl paints have made their reputation because they are tough, flexible, inert and water resistant. Water vapor is locked out as the Vinyl Zinc locks to the underlying Vinsynite.

Third protection is chlorinated rubber, a paint which forms a thick film. Adequate film thickness is important when contact with water and high humidity is unrelenting, as in cooling tower service. Chlorinated rubber is also noted for its toughness and water resistance.

Halstead & Mitchell protections are more than painted on. They are hydraulically forced into every nook and cranny of every Halstead & Mitchell Cooling Tower so that no spot can ever be left unprotected as a starting point for rust. The combination of heavy film, vapor seal, toughness and tremendous adhesion offer protection against corrosion matched by no other manufacturer.

Want Details on the Widest Selection in Cooling Towers? COMMERCIAL • INDUSTRIAL • RESIDENTIAL • TAKE-APART • CENTRIFUGAL

Write Halstead & Mitchell, Bessemer Bldg., Pittsburgh 22, Pa. Or See Your Leading Wholesaler

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WOOD ROTTING, TOO, CAN BE STOPPED!

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FOR DEHYDRATING AND TESTING ...

BEACH-RUSS
Portable
VACUUM PUMPS



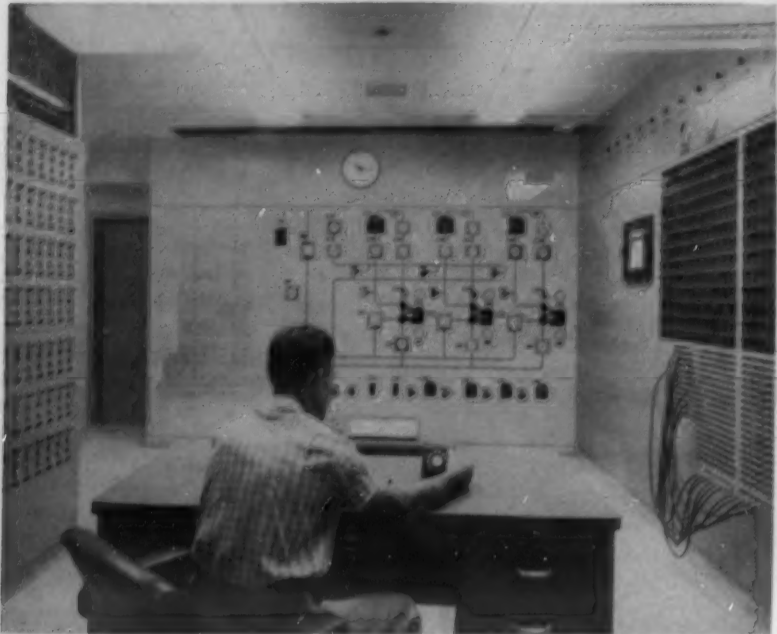
Model O Single-Stage Pump—1 mm. vacuum, blank flange, 1 CFM, 1/4 HP, weight 48 lbs.

Model A Two-Stage Pump—1/10 mm. vacuum, blank flange, 2.5 CFM, 1/2 HP, weight 80 lbs.

Write for prices and data.

BEACH-RUSS COMPANY
52 CHURCH ST. • NEW YORK 7, N. Y.

Master Panel Controls 400 Zones To Air Condition 24-Story Texas Bldg.



TO CHECK temperature of any of the 400 individual zones in the building, the attendant dials its number. Temperature flashes on a panel before him. Temperature adjustment equipment of the 3,000 tons of Carrier air conditioning equipment works automatically, but the attendant can switch to manual control if necessary.

A PLATE GLASS window at basement level of the 24-story Houston, Texas Bank of the Southwest provides a view of the master control panel which is central control of 400 individual temperature zones throughout the building, each with individual electronic control.

HOUSTON, Texas—The new building of the Bank of the Southwest has 400 individual temperature control zones.

Each tenant in the building can adjust the air flow in his office.

The master control system, with its glass front, can be clearly seen by the public.

The Bank of the Southwest building is the first large commercial building in the world to have such a complete control system working from one central control panel, according to C. D. Adams, of Minneapolis-Honeywell Regulator Co.

Cooled by 3,000 Tons Of Air Conditioning

The 24-story building is cooled by 3,000 tons of air conditioning. Aluminum panels, well insulated, reflect the heat from the top 20 floors of the building, "an economy in the air conditioning system," according to Wayne Holland, a partner in the firm of H. E. Bovay, Jr., construction engineer, which handled the air conditioning system.

Ducts, Pipes Built Into Ceilings

Ducts and pipes are built into the ceiling with air intakes situated on each floor. The heavy equipment is in the basement.

Each of the 400 temperature zones has its own electronic device to sense the temperature in that zone. All of the zones are wired into the master control panel in the basement, so that each zone's temperature is controlled from the one point.

The master control center looks like a multitude of lights and colored symbols assembled on a panel.

Electronic Dial Controls Any Zone Instantly

The man on duty at the panel uses an electronic telephone dial system to control any one of the 400 zones instantly. When he dials a number, the dial system connects the control panel with one specific zone recording device, and the temperature of that zone is flashed on the master panel.

When a zone deviates from its correct temperature, it automa-

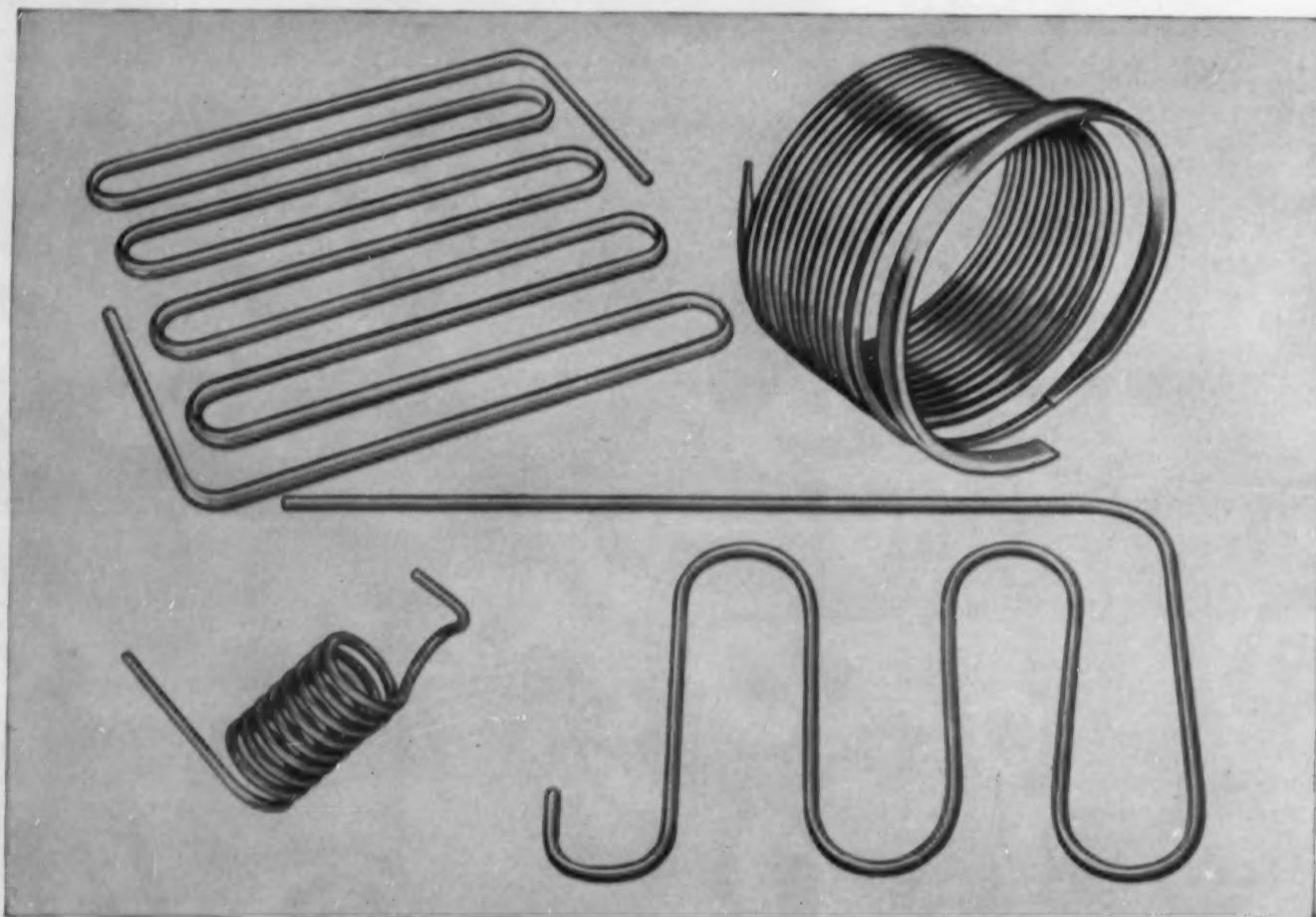
tically adjusts itself within minutes, Bovay said. If a mechanical failure should disrupt the automatic system for adjusting the temperature, the control panel indicates the error, and the attendant can switch to manual control.

Minneapolis-Honeywell provided technical advice and assistance in the installation. Air conditioning is by Carrier, through Straus-Frank Co., mechanical contractor.

The basement control room has a 14-ft. glass window through which visitors can observe the panel in operation. It was designed by Kenneth Franzheim, building architect.

F. P. Allen Dies at 58

YORK, Pa.—Francis P. Allen, commercial sales manager in Philadelphia for the Minneapolis-Honeywell Regulator Co., died in his home here on July 4. He was 58 years old.



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Bundyweld starts as a single strip of copper-coated steel. Then it's . . .



continuously rolled twice around laterally into a tube of uniform thickness, and



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NOTE the exclusive Bundy-developed beveled edges, which afford a smoother joint, absence of bead, and less chance for any leakage.

SIZES UP TO 3/4" O.D.

Push to 1957-58 Goal

Major New York Hotels' 'Year of Air Conditioning' Highlighted by Installations of Central Systems

NEW YORK CITY—This could be called "the year of air conditioning" for New York hotels, the *New York Times* reported recently.

"Of \$30 million being spent in a burst of modernization among the 170 hoteliers of the Hotel Association of New York City, more is going for air conditioning and TV than for any other item," the *Times* declared.

By air conditioning, it referred to central systems rather than room units. Some hotels that had room units are rapidly converting to central systems, the paper noted.

It attributed the great emphasis on air conditioning this year to three factors. One is the

city's "Summer Festival" promotion designed to bring new tourists to the city during the summer months. Second is the opening of the city's new air conditioned Coliseum that will continue to draw visitors to the city during the summer. Third is the fact that not a major new hotel has been built here in the last 25 years.

"Goal of the major hotels is to be completely air conditioned by the end of 1957 or 1958," the paper said.

The 1,000-room St. Moritz overlooking Central Park now has half of its rooms air conditioned and expects to have the remainder so equipped by the end of the year.

The Plaza has 450 rooms cooled now and anticipates having the rest of its 1,000 rooms completely air conditioned next year.

The plush Waldorf-Astoria, with 2,000 rooms, is not only converting to central air conditioning, but is changing its house current from direct to alternating at the same time. It had 400 rooms air conditioned prior to this year, will have 450 more converted this year, and another 400 next year. The bill for this is \$500,000.

The Sheraton-Astor will increase the number of its air conditioned rooms from 150 to 350 this year and will have all of its 800 rooms cooled by

December of the coming year. The Taft has 750 rooms out of 2,000 air conditioned and will add 500 more this year and 500 more next year.

The 1,850-room Commodore is increasing the number of air conditioned rooms from 300 to 800.

The Pierre already has all of its 600 rooms air conditioned, one of the very few in town that can make that boast.

In general, hotel managers are not charging extra for air conditioning, the *Times* reported. They put air conditioning into lounges and public rooms first, higher-priced guests rooms and suites next, then rooms facing inner courtyards, and finally the rest of the rooms.

The strategy is, the paper says, to create a brisk demand for higher-priced rooms first and then for rooms that have been regarded as least desirable.

One manager was quoted as

saying, "It's easier to sell a \$25 suite with air conditioning than a \$7.50 single without air conditioning."

He added that guests who used to spurn inner courtyard rooms now prefer them air conditioned to outer rooms that are not air conditioned.

With all this activity going on, the *Times* commented, vacationists can now specify in their requests for reservations whether they want rooms with air conditioning and with or without TV.

Condition Entire Houston Cab Fleet

HOUSTON, Texas—The Lo-Merc Corp. of Houston has completed installation of automotive air conditioners in the entire fleet of taxicabs operated by the Palm Cab Co., it was recently announced.

The units, manufactured in Houston, are specially designed to provide maximum cooling at the low engine speeds utilized in traffic operation on city streets, Lo-Merc officials explained.

The Lo-Merc automotive unit is a front-mounted one which fits into the front compartment of the passenger car or truck. Special brackets leave the major engine components accessible for routine service and adjustments.

T. A. Cooper, owner of the taxicab firm, reported that the units have operated in a highly satisfactory manner on even the hottest days.

Houston temperatures range into the mid-90's during practically every afternoon from early June through late September.

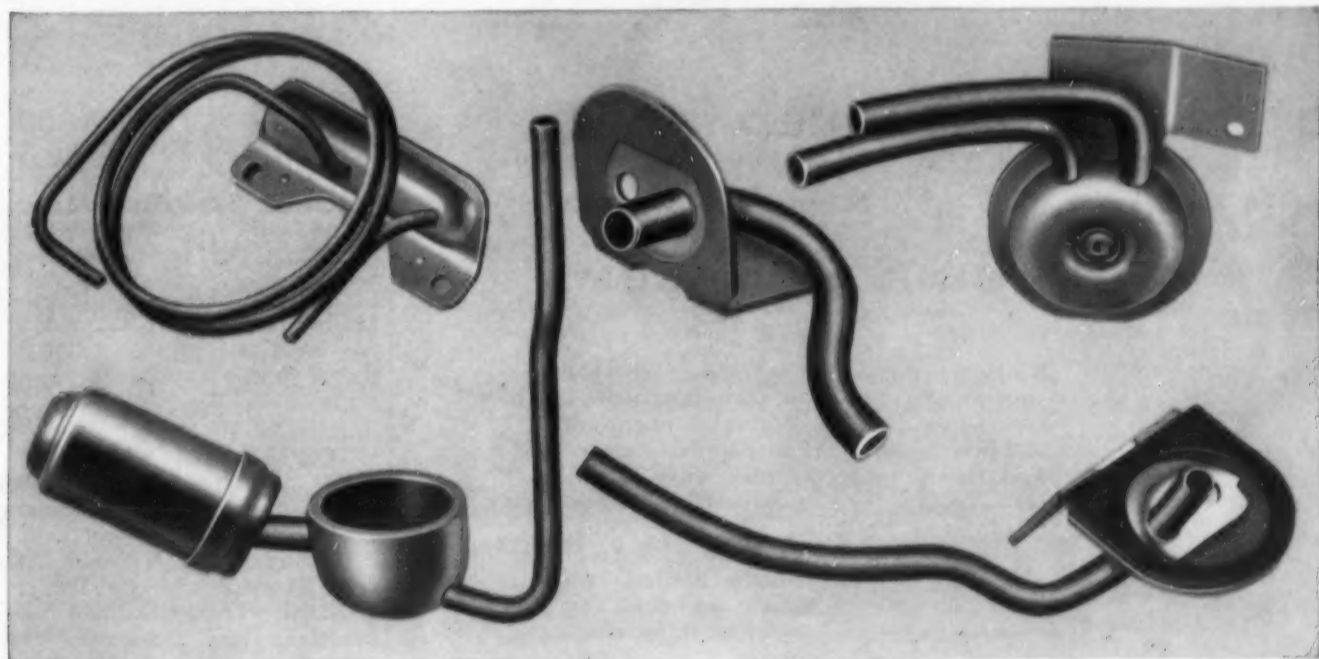
Fedders-Quigan Names Ford Assistant to Vice President

MASPETH, L. I., N. Y.—Thomas H. Ford has been appointed assistant to the vice president of the Fedders - Quigan Corp., it was announced recently by U. V. Muscio, vice president.

Ford comes to Fedders from Whirlpool-Seeger Corp. where he held the position of product manager, air conditioning department. Before that, he acted as product and engineering manager of the air conditioning division of RCA.



T. H. Ford



Here is a small sampling of the variety of tubing parts produced for Bundy refrigeration customers. Many of them involved close cooperation between Bundy engineers and the customers, in solving problems of design and function. Are your tubing designs simple or complex? Do they call for serpentine coils, swaging, flattening, expanding, brazing, saddle

jointing, bending to small radii, piercing, upsetting, slotting, threading, angle cutting, notching, flanging, flaring, reducing, tapering, other fabrication operations, or combinations of the above? Come to Bundy for the refrigeration industry's most reliable tubing, most helpful engineering talents, and most versatile fabrication facilities.

It almost goes without saying that you can't beat Bundyweld for leak-proof, dependable performance in your compressor and evaporator coils and refrigerant lines, and in other tubing lines throughout your refrigerators and freezers.

But you get more than peace of mind with Bundyweld. For instance, you tap a wealth of fabrication facilities and engineering skills.

Do your tubing part designs call for difficult fabrication operations or easy ones? Do the designs call for unusual combinations of operations? Do they create problems

that may seem unsolvable?

If your needs call for a tubing part that is at all produceable, you can count on us to do the job—exactly to specifications at lowest possible cost. But say it isn't produceable. What then?

Just this. Bundy engineers, who know their Bundyweld and refrigeration tubing problems inside and out, will work with you personally, until problems turn into solutions.

This help and teamwork pay off in time and trouble saved. And such a pooling of specialized skills—yours and the Bundy man's—frequently pays off in lowered ma-

terial costs and lowered production costs, too.

What if your company is geared for low-cost fabrication? Wonderful. You can count on us to ship clean, carefully inspected Bundyweld on time and in specified straight lengths. Of course, you can still summon all the engineering help you can use.

For tubing that's the standard of dependability, for fabrication facilities and engineering talents devoted to producing better tubing parts at lowest possible cost, come to Bundy, headquarters for small-diameter tubing.

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For more information about products advertised on this page use Information Center, page 20.

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LIQUID INDICATOR

NEW FLO INDICATOR FLAP SHOWS ALL FLOW CHANGES

Analyze flow, function of expansion valve, by means of E-Z-SEE sensitive flap, instantly responsive to variations in flow. Positively leak-proof — hundreds of thousands in use.

Available to Wholesalers everywhere

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ZELLENOPLE, PA.

Dealers Discuss Vital Issues of 1956

Discount House Competition, Direct Sales to Builders, Low Margins, Over-Priced Trade-Ins, Over-Production, Bait Ads

CHICAGO—"More work for less profit is what the appliance dealers see ahead for themselves as they compare the next months of 1956 with the same period for 1955," Don Gabbert, president of the National Appliance & Radio-TV Dealers Association, announced recently.

FINDINGS OF 15,000 DEALER SURVEY

This is one major finding of the national survey of 15,000 appliance dealers recently completed for NARDA by survey research company, Leo J. Shapiro & Associates.

Gabbert pointed out that NARDA had Dr. Shapiro's company survey a massive national

sample of both member and non-member appliance dealers to secure objective and comprehensive data on dealer problems for use in a series of dealer-manufacturer relations meetings, held recently in Chicago at the Merchandise Mart.

Gabbert reported that the survey developed vital facts pertinent to such major problems confronting the appliance dealer today as competition from discount houses; direct sales to builders; over-priced trade-ins; low margins; service and warranty problems; over-production; inventory problems; selling last year's models; TV saturation; dealer price-cutting; bait advertising; and depressed

economic conditions in localities affected by low farm prices, strikes, and unemployment.

One of the hottest issues in the appliance industry—direct sales of appliances to builders, and the use of mortgage money for financing appliances—was covered in great detail by the survey, the announcement said.

DEALERS FEEL, 3 TO 1, GOVT. SHOULD EXCLUDE APPLIANCES FROM LOANS

The survey showed that by a margin of 3 to 1, dealers felt that it would be a good thing for them if the government prevented major appliances from being covered by residential mortgages. Dealers believe that

the home builder is the group that primarily benefits from this use of mortgage money.

The survey indicated that dealers were satisfied to see the manufacturer and the distributor sell directly and aggressively to the large builder—the 4% of the builders who start over half of all housing units, Dr. Shapiro reported.

The survey showed that 37% of the dealers do have a definite program for selling to the small home builder, and they do not want to have their supplier compete for the business of the small builder—the 96% of the commercial builders who put up the other half of the housing units.

Neither are dealers interested in competing with builders who can buy appliances at prices lower than the dealer price and who sell their appliances on the retail or replacement market instead of installing them into the new homes, it was stated.

Fla. Power Aids 2-Mo. Dealer Drive To Sell Combinations, Freezers

MIAMI, Fla.—A two-month campaign to help dealers sell 5,000 combination refrigerator-freezers and 1,500 home freezers in its territory has been launched by the Florida Power & Light Co. here.

The campaign is running from July 1 to Aug. 31 and is expected to produce a total sales volume on these appliances of \$2,175,000.

An intensive advertising campaign has been launched by the utility based around six selling points. They are:

1. Larger freezing space.
2. Automatic defrosting.
3. More room inside, less space outside.
4. More ice cubes.
5. Easy on the eye.
6. More conveniences.

The utility is also supplying free sales aids picturing a pair of jolly eskimos and is offering free window and floor display space in its offices. Its home service representatives are available for demonstrations.

Tryman Distributors Appointed by Servel

EVANSVILLE, Ind.—Tryman Distributors, Inc., Milwaukee, has been selected to distribute Servel home appliances in 48 counties in Wisconsin and 12 counties in Michigan.

Tryman's sales territory includes the upper peninsula of Michigan and all of Wisconsin except the northwest portion.

Officers of the Tryman firm are Thomas B. Cavanaugh, president; Walter G. Zinn, vice president and treasurer; and Phil Fuchs, vice president and secretary.

Manitowoc Names Outlet

MANITOWOC, Wis.—Ray G. Frederickson, general sales manager, Manitowoc Equipment Works, announced recently that Appliance Distributors of Nashville, Tenn., will distribute Manitowoc's complete line of freezers in central Tennessee.



TANGLED UP BY A TUBING PROBLEM?

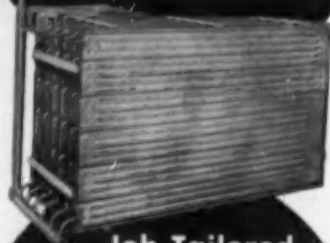
Rochester can straighten you out! Whether your problem is design, planning, quality control or delivery, Rochester engineers and tubing specialists are ready to wade in. And they'll come up with ways to cut costs, "beef up" your profits. What's more, you're assured of top-quality steel tubing, delivered right on schedule. GM Steel Tubing is rugged, reliable, flexible, versatile—designed to take it and take any shape. That's why you find it on more advanced products every day. Contact your Rochester Products engineer or write us direct for further information.

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GENERAL MOTORS
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**DEAN
GOLD PLATES**
for Ice Bank
Air Conditioning

MANY SHAPES MANY SIZES
MANY METALS



Job-Tailored

to your exact size requirements,
Dean Cold Plates are low in
first cost and in operating
costs. Write for catalog.

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Bohn To Construct Aluminum Rolled Rod Plant In Indiana

DETROIT—S. D. Den Uyl, president of the Bohn Aluminum & Brass Corp., announced recently that the firm had purchased 30 acres of land near Butler, Ind. which will be used as a site for a new plant to produce aluminum rolled rod.

Plans for the plant are now being drawn and construction will begin in the near future. The new plant will be a modern one-story structure occupying approximately 150,000 sq. ft. The build-up of employment at the new plant will take place gradually as equipment is installed and production gets under way, it was explained.

The plant will consist of a foundry and a high-speed aluminum rod rolling facility. Raw metal will be converted into finished products—rods and bars of aluminum alloys in round, hexagonal, and square shapes.

Bohn Aluminum is a multi-million dollar corporation operating 10 plants. Main offices, research laboratories, and several manufacturing plants are located in Detroit; other plants are located at South Haven, Holland, and Adrian, Mich.; Greensburg and Hammond, Ind.; and Danville, Ill.

During the past 18 months, the corporation has acquired controlling interest in Reo Motors, Inc., truck builder at Lansing, Mich., and has acquired a one-third interest in Diamond T Motor Car Co., truck manufacturer at Chicago, it was stated.

Bohn this year also purchased the Betz Corp. of Hammond, Ind., manufacturer of heat transfer equipment for commercial refrigeration and air conditioning. To expand this facility, Bohn acquired a new 140,000 sq. ft. building at Danville, Ill. and is now transferring the Betz operation there.

Montana Wholesaler Changes Firm Name

BILLINGS, Mont.—Temperature Supply Co. is the new name adopted July 15 for Refrigeration Supply Co. of Montana, according to N. L. Sulenes, manager-partner here.

The store in Great Falls, under manager-partner Frank W. Pond also adopts the new title, it was added.

Offering "a complete" stock of air conditioning, refrigeration, and heating equipment, parts, and supplies, the management said it felt the name change would better describe the whole business activity.

Ownership and management remain the same, it was noted.

Copper & Brass Research Names Brown To Boost Copper Tube Use on West Coast

NEW YORK CITY—Raymond J. Brown has been appointed west coast field representative of the Copper & Brass Research Association and will have offices in Los Angeles, the company announced.

Formerly senior plumbing inspector for the City of Los Angeles, Brown will be concerned primarily with promot-

ing the use of copper tube in west coast areas. However, he also will be available for consultation with municipal and private-industry officials and groups on any facet of the copper and brass industry in which the association could normally be expected to participate, it was noted.

He starts immediately.

11 Complete 6-Mo. Trane Cooling Sales Training

LA CROSSE, Wis.—The Trane Co. has announced the graduation of 11 men from its mid-year 1956 sales engineering training program.

The men, who are engineering graduates of colleges and universities throughout the U. S., received the additional specialized knowledge required by the air conditioning, refrigeration,

heating, ventilating, and heat transfer industry during the six-month Trane course, the company explained.

Nine of the men have been assigned to Trane field sales offices where they will receive an additional six months of training as sales engineers. The remaining two men were assigned to the company's home offices in La Crosse—one in the Heat Transfer Sales Dept., and the other, in the Fan Sales Dept. of the firm.

for squeezing into tight spots

ALCO 402
EASIER-TO-INSTALL BODY FOR SMALL FIXTURES

Compact—easy to handle! You can install it in any position—even upside down—in or out of the refrigerated area. It's liquid charged! Pressure limiting—prevents motor overload.

CHOOSE FROM THESE CONVENIENT SIZES:
Freon-12 — 1/4, 1/2 and 1 ton
Freon-22 — .4, .8 and 1.6 tons
Methyl-Chloride — 1/2, 1 and 2 tons

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ENGINEERED FOR SERVICE ENGINEERS

Designers and Manufacturers of Thermostatic Expansion Valves; Evaporator Pressure Regulators; Solenoid Valves; Float Valves; Float Switches.

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Fast, dependable, world-wide service.
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2732 N. Ashland Ave. Chicago 14, Ill.

What's New



Reznor Redesigns Horizontal Line

—KEY NO. F-740—

MERCER, Pa.—A redesigned line of "PAC" gas-fired horizontal furnaces are now being produced by Reznor Mfg. Co. here, it was announced.

Interchangeable panels on the blower compartment allow the return air duct to be brought in at top, bottom, or either side as well as the conventional end opening, it was noted.

Air flow may be in either direction, it was stated, so the unit can be installed with access door to

controls and burners on the most convenient side. Shipped assembled for air-flow direction specified, the unit can be converted in the field for opposite air flow if necessary.

Filters and filter racks are optional and can be added as needed between the return air opening on the blower housing and the return air duct, it was explained. Filters can be changed from outside with no doors to open or plates to remove.



Broiler-Griddle Holds 2 Temperatures

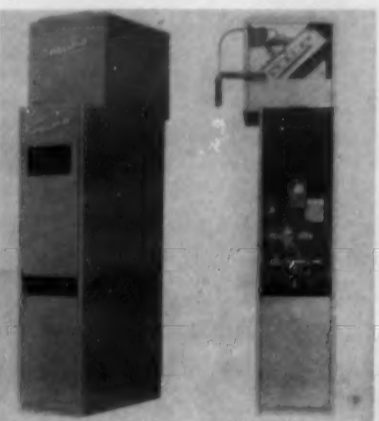
—KEY NO. F-741—

QUAKERTOWN, Pa.—A new "Griddle Char-Broiler" combination with independent heating elements and controls was recently developed by Magikitch'n Equipment Corp. here.

Designed for use in diners, drive-ins, luncheonettes, and other restaurants where both broiling and griddle work are required and

space is at a premium, both broiler and griddle of the unit can maintain two different degrees of temperature and all burners are fired from a central pilot light, the firm said.

"Twin Jet" char-broils with "glowing radiant heat," according to the manufacturer, which sear-seals in flavors and juices. The extra heavy griddle top may be lifted off without use of tools.



Sequoia Adds Remote Air-Cooled Unit Line

—KEY NO. F-742—

SAN CARLOS, Calif.—Sequoia Mfg. Co. has announced expansion of its companion air conditioning line to include a new series of model ACR remote air-cooled units.

Extremely compact coil cabinets in the 2, 3, and 5-ton models immediately available add on to all basic type of furnaces—upright, counterflow, and horizontal—for economy in common use of blower, filters, and ductwork, the company said.

In new construction, cabinets alone can be installed initially and the actual cooling assembly added later, with no price penalty. Condensing units, for remote location are available separately.

Model ACR operating capacities are 24,000 B.t.u. per hour for the 2-ton, 36,000 B.t.u. for the 3-ton, and 58,800 B.t.u. for the 5-ton model.

The hermetically-sealed, twin-fan compressor operates on 230-volt, single-phase current. Overload protection is provided.

**AIR-CONDITIONING
MOTORS
NEVER BURN OUT**



when protected with



**MECHANICAL INDUSTRIES
PRODUCTION COMPANY**
223 ASH STREET • AKRON, OHIO

Drayer-Hanson Offers Replacement Housing Kit

—KEY NO. F-743—

LOS ANGELES—To permit dealers to modernize their "Spa-saver" ceiling-mounted refrigeration units, Drayer-Hanson here has announced a complete kit of replacement housings.

The all-aluminum housing with necessary screws and nuts in-baked-on white enamel finish is

available for nine models, the company said. Outside dimensions range from 24" to 26" by 10 in. to 53" by 39" by 13" in.

It is shipped as a complete kit, with side panels, access door, bottom panel, fan guard, and all necessary screws and nuts included.

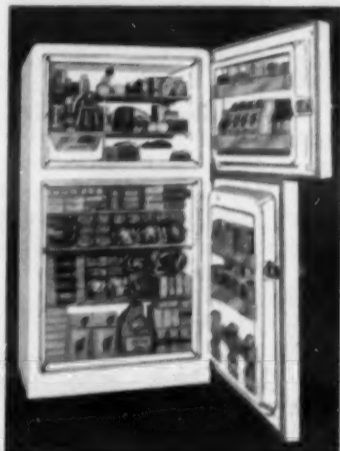
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**AMERICA'S
FINEST**

**2 in 1
REFRIGERATOR
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- Full 350 lb. Freezer Below
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- Built-in Storage Compartments in Both Doors
- Refrigerator Liner Is Porcelain
- No Defrosting



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Products Advertised

(list name, page, and issue date)

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Prefer Frick Heat Pumps
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Refrigeration



Freezer with Overhead Coils at Seaboard Fish Co., Baltimore, Maryland



Frozen Fruit Storage, 197 by 195 by 18 ft. High, Held at Minus 10°



Freezer Storage Cooled with Frick Square-finned Pipe, Benton Harbor, Michigan

Fruit and vegetable growers, concentrators, packers, canners, quick-freezers, warehousemen, shippers, and others throughout the food industries specify Frick equipment because of its EXTRA value.

EXTRA experience, EXTRA engineering, and EXTRA economy are built into Frick refrigerating, ice making, quick freezing and air conditioning machinery. Thousands of installations prove it: let us show you the nearest ones, and submit figures on your needs.

FRICK COMPANY
Waynesboro, Pennsylvania



Unit Air Cooler Holding Low Temperatures with Ammonia Refrigeration

DEPENDABLE REFRIGERATION SINCE 1882
FRICK & Co.
WAYNESBORO, PENNA. U.S.A.



Ice Machine Produces Up to 1,200 Lbs. Daily

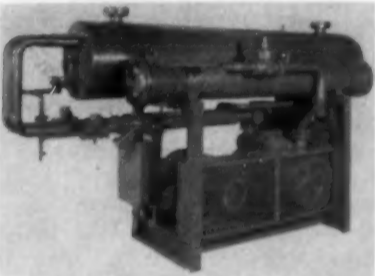
—KEY NO. F-744—

OAKLAND, Calif.—Liquid Freeze Corp. here recently announced a new remote model R-612 "Instant-Ice" machine.

This machine produces from 600 to 1,200 lbs. of ice flakes per 24 hours, depending upon which of six condensing units is installed with it, the company said.

Model R-612 is small in size for its flexible range of production, 30 in. by 33 in. high, light in weight, and convenient for installation in locations where space is a problem, it was stated.

The model is shipped as a complete ice producing section, ready for installation with the condensing unit.



Vilter Introduces Packaged Chiller

—KEY NO. F-745—

MILWAUKEE—A completely packaged liquid chiller, called the "Uni-Chiller," has been introduced recently by the Vilter Mfg. Co. here.

The package includes the compressor, water chiller, heat exchanger, condenser, all necessary controls, and a holding charge of refrigerant. Factory assembled and tested, with its controls, piping, and control wiring installed, it is complete except for in-the-field connections and possible charge of additional refrigerant, the manufacturer stated.

The Vilter line of Uni-Chillers ranges in size from 15 to more than 125 tons capacity. It is available for either "Freon-12" or "Freon-22."

Although used primarily for air conditioning, these units can be employed in practically any field where chilled water or liquid is required, the company says.

Incorporated as standard equipment are a low water temperature thermostat, a liquid line solenoid

valve, a liquid line sight glass, double pipe heat exchanger, one thermal expansion valve for each cooling circuit, a condenser water regulating valve, a thermostatically controlled crankcase heater, a compressor belt guard, and structural steel unit base.

Interconnecting steel piping is used for the suction and discharge lines and copper tubing for liquid lines.

Compressor unit is available in 2, 4, 6, and 8-cylinder sizes. Normally V-belt driven, it can be offered with direct connected motors. All but the 2-cylinder units are equipped with capacity reduction.

Standard control panel includes an oil pressure gauge, discharge pressure gauge, oil pressure failure switch, compressor capacity reducing pressure switches, high and low pressure cutouts, and freeze-up protection thermostat.

A modulating capacity reduction control is available in place of the compressor capacity reducing pressure switches when required.



Tork Improves '7-Day Dial' Time Switch

—KEY NO. F-746—

MOUNT VERNON, N. Y.—The "7-Day Dial," introduced as a separate time switch by Tork Clock Co., Inc. early in 1955, has been greatly improved and incorporated into Tork's standard line.

Called the 7D1191, its slow moving dial is divided into seven sections, marked for each day of the week.

"Requiring a full week to make

one complete revolution, the dial will accept screw-on trippers at even two-hour periods in each of its daily segments, offering fine selectivity in seven-day time switches," it was stated.

"The use of these new screw-on trippers for on-off action also permits manual operation of the time switch, if desired, without the need for relays as in former models."

The 7D1191 is recommended for use wherever daily schedules in lighting, heating, ventilating, air conditioning, refrigeration, or display signs may require variance.

"Use of the 7D1191 makes possible the starting and stopping of a given operation at different times each day."



Combustion Efficiency Check Kit Offered

—KEY NO. F-747—

MICHIGAN CITY, Ind.—A new No. 1100 combustion test kit for checking on combustion efficiency

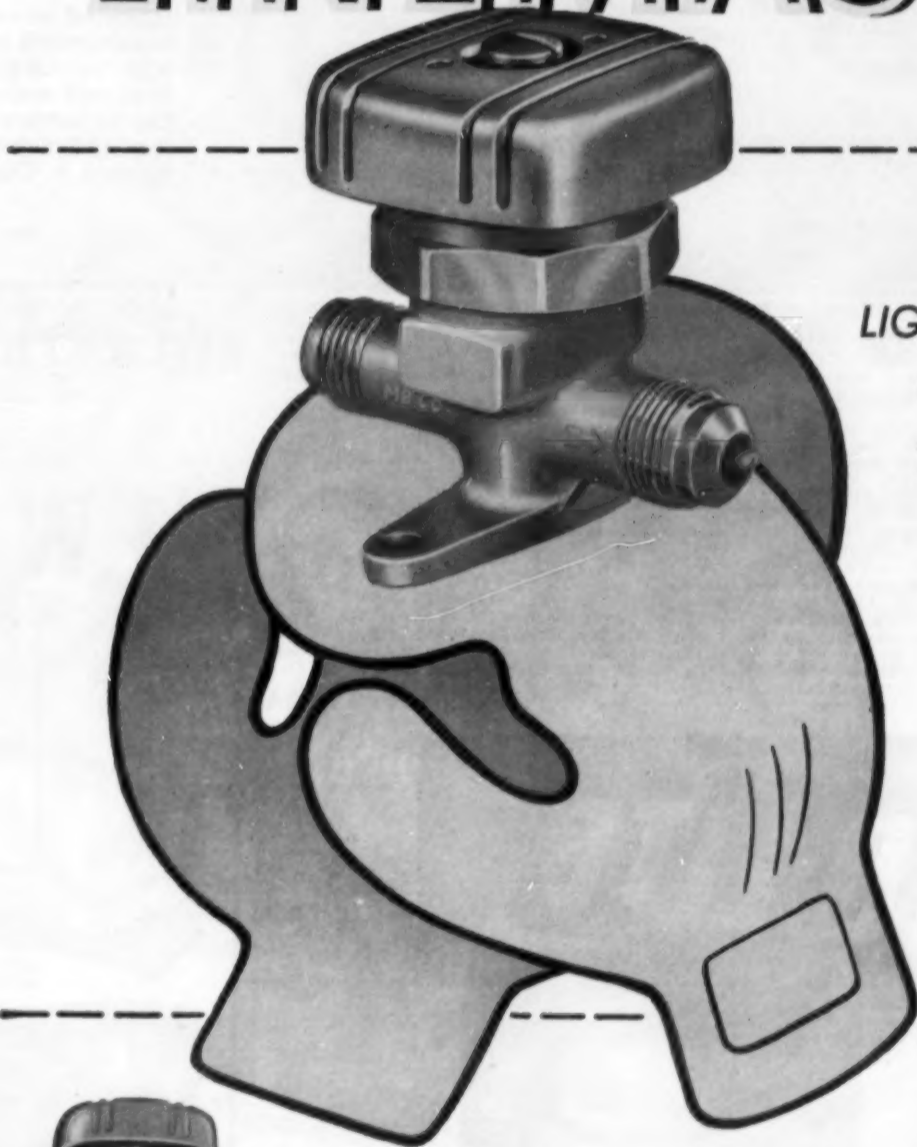
was recently announced by F. W. Dwyer Mfg. Co. here.

It checks carbon dioxide content, draft, stack temperature, and smoke in all gas, oil, or coal-fired installations, the company said.

Coming in a portable kit, Dwyer No. 1100 is claimed to be accurate to plus or minus 1/2 of 1% carbon dioxide.

INTRODUCING THE MUELLER BRASS CO.

LINEMASTER



THE NEW
LIGHT HEAVYWEIGHT
CHAMPION OF
THE DIAPHRAGM
VALVE FIELD!

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Increase
COOLING TOWER
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With

ASPIR-JET

Aspir-Jet, the new spray nozzle, increases efficiency of cooling towers by increasing water break-up and improving water distribution. This is accomplished by the Aspir-Jet unique design which atomizes the water with as little as one-half pound nozzle pressure.

Formed of butyrate plastic, Aspir-Jets last longer because they do not corrode. Thousands already in use are giving better cooling even with lower than normal pressures.

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SUPER-SEALING

A phosphor bronze diaphragm between two stainless steel diaphragms gives the LINEMASTER an unbeatable combination for super-sealing and long life. Diaphragms pressure wear tested for thousands of openings and closings without failure.

SUPER-SEATING

In the LINEMASTER, tough, resilient molded nylon seat disc insures positive shutoff even if foreign material is lodged against the seating surface. Mueller Brass Co. pioneered and proved the superiority of nylon for "super-seating".

The simple design and sound engineering of this compact forged brass LINEMASTER make it a real heavyweight among "shorty" diaphragm valves. These new LINEMASTERS are solid brass construction throughout . . . even to the comfortable, square design handwheel. Flow passageway is streamlined to eliminate turbulence and provide full-flow. Exclusive triple diaphragms of phosphor bronze and stainless steel furnish seep proof sealing and excellent wear resistant properties. A tough, resilient nylon stem disc operating against a precision finished seat assures positive shutoff. Five straight-thru and angle type LINEMASTERS with flare, solder, and M.P.T. end connections are available. Never before has such a compact valve embodied so many good sound engineering features and been built to such high standards of quality. The LINEMASTER is really a light, heavyweight champion. See the popularly priced LINEMASTERS at your wholesaler's . . . and judge for yourself.

MUELLER BRASS CO. PORT HURON 9, MICHIGAN

MUELLER
BRASS
CO.
STREAMLINE
PRODUCTS

Creamery Package Promotes Stauder

CHICAGO—Oscar F. Stauder has been promoted to sales manager of the Refrigeration Div. of The Creamery Package Mfg. Co., according to J. L. Braze, vice president.

Stauder joined Creamery Package in 1952 following many years of field experience in refrigeration applications. His background includes refrigeration engineering for dairies, ice cream hardening tunnels, bakeries, chemical plants, skating and curling rinks, food freezing tunnels, and cold storage plants.

Stauder was responsible for engineering automobile low temperature test rooms and wind tunnels for practically every major automobile manufacturer. He has also engineered altitude chambers.

Aristocrat Distributing Opens Modern Showroom

NEW YORK CITY—Aristocrat Distributing Co., Inc. recently announced the opening of its "modern and convenient" showroom at 99 University Pl. here to the wholesale and retail florist trade.

The firm scheduled an open house from July 1 to July 15, with Speros Sakas, honorary president of the Metropolitan Flower Association as host. Featured was a complete new line of "Aristocrat" and "Ambassador" floral display refrigerators, walk-in storage refrigerators, and combination storage, walk-in, display units.

MARSH Instruments

THE SERVICEMAN LINE of Testing Gauges, Testing Thermometers, Timers, etc.

PRESSURE GAUGES and Dial Thermometers for all services.

MARSH-ELECTRIMATIC, Water Regulating Valves, Solenoid Valves.

MARSH INSTRUMENT COMPANY
Sales Affiliate of J. P. Marsh Corporation
Dept. D, Skokie, Ill.

Government Contracts

SYNOPSIS OF PROPOSED PROCUREMENT

NAVY

General Stores Supply Office, 760 Robbins Ave., Philadelphia 11, Pa.
VALVE TEMPERATURE REGULATING Spec. MIL-V-3155A Ships Amend. 3-790 ea.—IFB-155-7-57B—Bid Opening 3 Aug. 56.

GENERAL SERVICES ADMINISTRATION

General Services Administration, Business Service Center, Region 3, 7th & D Sts., S.W., Washington 25, D.C.
AIR CONDITIONING, 2ND FLOOR LABORATORY, 1776 Pennsylvania Ave., N.W., Washington, D. C.—Job—IFB GS-R3-B-4668—Bid Opening 8-1-56.

CONTRACTS AWARDED THROUGH JULY 13, 1956

Headquarters, 3535th Aircraft Observer Training Wing, Mather Air Force Base, Mather Field, Calif.

Install Air Conditioning and Humidity Control building 4553, project M29-56 (IFB) 04-612-56-54—Job—\$49,972—A. Belanger & Sons, Inc., 173 Harvey St., Cambridge, Mass.

U. S. Navy Purchasing Office, Naval Supply Center, Norfolk 11, Va.
Air Conditioning System—1 lot—\$40,652—Cox-Frank Corp., 5527 Virginia Beach Blvd., Norfolk 2, Va.

General Services Administration, Region 5, 575 U. S. Courthouse, 219 South Clark St., Chicago, Ill.

Partial Interim Air Conditioning for Courts, etc., at the U. S. Post Office Courthouse & Custom House, Milwaukee, Wis.—\$29,617—Downey Heating Co., 1739 West St. Paul Ave., Milwaukee, Wis.

Headquarters, Wright-Patterson Air Force Base, Ohio.
For new air conditioning system South Encl. Building No. 16, area "B"—(IFB 33-601-56-770)—Job—\$278,900—Conditioned Air, Inc., P. O. Box 2429, Charleston, W. Va.

Air conditioning system, telephone switchboard room NR. 252, automatic equipment room NR. 15, area "B"—(IFB 33-601-56-601)—Job—\$26,562—Hughes-Simonson, Inc., 20 N. McGee St., Dayton, Ohio.

Purchasing and Contracting Officer, Ft. Eustis, Va.
Air Conditioning of Four (4) Classrooms in Building P-2850, Fort Eustis, Warwick, Va. Contract No. DA-44-019-TC-1151. (IFB 44-019-56-204)—Job—\$59,887—Warwick Air Conditioning, 410 Center St., Warwick, Va.

District Public Works Office, Eighth Naval District, New Orleans, La.
Install air conditioning in operations spaces and control tower building 1770, Naval Auxiliary Air Station, Kingsville, Texas. (IFB NBY-1041)—\$21,438—Anslinger Air Conditioning Co., 2508 Morgan, Corpus Christi, Texas.

Air conditioning surgery IV, building H-3, U. S. Naval Hospital, Corpus Christi, Texas. (IFB NBY-1122)—\$19,367—Coolidge Locher Co., 1310 So. Staples St., Corpus Christi, Texas.

Headquarters, Moody Air Force Base, Valdosta, Ga.
Air conditioning of hospital headquarters bldg. (AF 09(607)-187)—Job—\$10,530—Murphy Electrical Service, 125 E. Central Ave., Moultrie, Ga.

District Public Works Office, Eleventh Naval District, San Diego 33, Calif.
Refrigeration of Meat cutting room and display additions at Sales Commissary, Marine Corps Base, Camp Pendleton, Calif. Contract NOY-93230 (IFB 51337B Revised)—Job—\$33,730—C. S. Williams, 4814 El Cajon Blvd., San Diego, Calif.

General Services Administration, Region 9, Business Service Center, 49 Fourth St., San Francisco 5, Calif.
Court Room Air Conditioning, Post Office and Courthouse Bldg., Carson City, Nevada (49-SF-CR-56-97)—Job—\$14,995 (Contract GS-09B-7031-SF)—Sture Svensson, 304 South Minnesota St., Carson City, Nev.

Base Procurement, Randolph Air Force Base, Texas.
Air Conditioning and Modification of Special Weapons Training Building 7 (IFB-41-606-56-101)—\$46,250—A. Belanger & Sons, Inc., 173 Harvey St., Cambridge, Mass.

HQ. San Bernardino Air Materiel Area, Norton Air Force Base, Calif. Procurement Division, Director of Procurement and Production.
Air Conditioning System for IBM Room Bldg. 522, Norton AF Base, San Bernardino, Calif. IFB-04-607-56-328 Includes Amend. No. 1.—Job—\$49,750—AF 04(607)-2087—J. Putnam Henck, 3947 Sierra Way, San Bernardino, Calif.

General Services Administration, Region 4, Business Service Center, 50 Seventh St., N.E., Atlanta, Ga.
Air Conditioning for Court Room U. S. Post Office and Court House, Gainesville, Ga. (IFB CR4-1242-GS-04-B-3852)—Job—\$14,390—McKenney's, Inc., 120 W. Nabell Ave., East Point, Ga.

HQ., St. Louis Area Support Center, 12th & Spruce Sts., St. Louis 2, Mo.
Air Conditioning, Adjutant General Publications Center, 1655 Woodson Rd., St. Louis 14, Mo. Drawing 141. Contract DA-23-207-AV-269 (IFB AV-23-207-56-56)—Job—\$48,080—Air Cooler Corp., 2718 Gravois, St. Louis 15, Mo.

Navy Purchasing Office, 4th & Independence Ave., Washington, D. C.
Mobile air conditioner, shore based. (N600(A)42742) (IFB 600-1699-56)—26 ea.—\$269,815—Air-A-Plane Corp., 3040 Virginia Beach Blvd., Norfolk, Va.

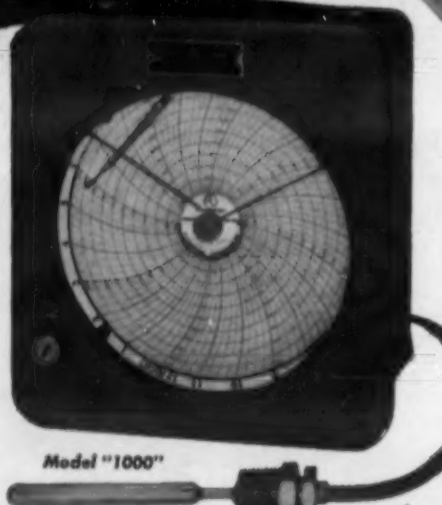
Purchasing Branch, Fort Monroe, Va.
Installation of Air Conditioning in Bldg. No. 5, Section F—Job—\$41,458—Virginia-Carolina Electrical Works, Inc., 1007 East Main St., Norfolk, Va.

Air Force Missile Test Center, Patrick Air Force Base (ARDC), Fla.
Services and Materials for Installation of Air Conditioning in Bldgs. No. 561, and 562. (IFB 08-606-56-233)—Job—\$54,990—Harper Plumbing & Heating Co., Inc., 1155 South Orlando Ave., Winter Park, Fla.

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TEMPERATURE RECORDING...

Newly designed, Model "1000" Auto-Lite Recorder gives permanent proof of temperature behavior. • 6" clear reading chart; various standard ranges from minus 40°F. to plus 550°F. • 3 standard types; choice of 24-hr. or 7-day cycle. • Electric or mechanical chart drive. • With capillary tubing for remote reading. Priced from \$49.50.
Send for new catalog describing many styles of Auto-Lite temperature Recorders and Indicators.

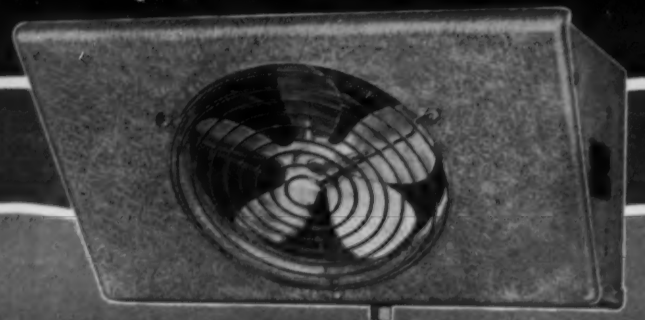


Model "1000"

THE ELECTRIC AUTO-LITE COMPANY
INSTRUMENT AND GAUGE DIVISION
TOLEDO 1, OHIO
NEW YORK • CHICAGO • SARNIA, ONTARIO

TEMPERATURE RECORDERS

BETZ



REACH
IN
UNIT

QUALITY
AT LOW
COST

An Exclusive Betz Design

Installed above the top shelf, Refrigerated air is exhausted against the back wall • Prevents high velocity air movement over stored products and maintains uniform temperatures from top to bottom of cabinet • Avoids door sweating and refrigeration losses when doors are opened • Capacities 100 to 300 BTU per 1° TD.

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BETZ DIVISION

BOHN ALUMINUM & BRASS CORPORATION

DANVILLE • ILLINOIS

NEW Designs and Features! P-H REFRIGERATORS and FREEZERS



MODEL P 40-2
Self-Contained



MODEL SA 15-15
Two-Temperature
Refrigerator



MODEL P 66-3
Self-Contained

Important features of the newly styled and completely redesigned P-H line of commercial refrigerators and freezers include:

- ☆ Genuine Porcelain or Stainless Steel Finish.
- ☆ Exclusive "Grad-U-Matic" Self-Defrosting Air Conditioning.
- ☆ Tubular Electric-Welded Steel Frames.
- ☆ Heavy Fiberglass Insulation.
- ☆ Solid or Triple Thermopane Doors.
- ☆ Self-Contained or Remote Control.

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Also AVAILABLE — A complete line of Reach-In, Pass-Thru and Salad Refrigerators . . . Upright Storage Freezers . . . Baker's Freezers and Dough Retarders . . . Dairy-Delicatessen Cases . . . Two-Temperature Refrigerators . . . 22 to 96 Cu. Ft. Capacities . . . Dry Beverage Coolers . . . and Walk-In Coolers and Freezers.



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GRAND HAVEN, MICHIGAN

EXPORT OFFICE — PUFFER-HUBBARD INTERNATIONAL —
440 Lafayette St., New York City — Cable "MANREFSUP"

Ranco Will Buy 40% of Wilcolator (Australia), Use as Controls Outlet

COLUMBUS, Ohio — Ranco Inc. has entered into an agreement for the manufacture and sale of its pressure and temperature controls in Australia by Wilcolator (Australia) Ltd., A. M. Hoover, president, announced recently.

The agreement provides for acquisition by Ranco over a three-year period of a 40% interest (578,539 shares) in the Australian company for approximately \$320,000.

Ranco is to provide Wilcolator with technical information and advice covering the manufacture of those Ranco products for which the Australian demand warrants local manufacture.

These will be supplemented by controls which will be partly manufactured in Australia or imported in completed form from a 100% owned Ranco subsidiary in Scotland.

Ranco will name three directors to the Wilcolator board. The agreement also provides that the Australian company's name is to be changed to one of more general character.

Wolverine Opens Mill Depot In Rock Island

EVANSTON, Ill.—A new mill depot has been opened in Rock Island, Ill. to serve the customers of Wolverine Tube, Div. of Calumet & Hecla, Inc., announced E. J. Campbell, mid-west district sales manager.

This depot will stock Wolverine copper water tube, refrigeration tube, and automotive tube.

"The establishment of this new service facility will speed shipping service to customers in the western Illinois and eastern Iowa area," it was pointed out.

Thomas E. Goodyear will coordinate the new Wolverine mill depot operation from the Moline, Ill. office.

Air Conditioned Bldg.

WINSTON-SALEM, N. C.—The Liberty Building, a three-story, completely air conditioned office building at 211 Liberty St., was formally opened recently. The building has more than 30,000 sq. ft. of floor space.

Cooling, Refrigeration May Distributor Sales Up 3% over '55 Period

WASHINGTON, D. C.—May sales of air conditioning and commercial refrigeration equipment distributors were 3% higher than a year ago and 2% above April, according to the Bureau of the Census.

Their sales for the first five months of 1956 rose 6% compared with the corresponding period of last year.

Inventories of the distributors at the end of May increased 1% over stocks on hand both on May 31, 1955, and the end of April.

Sales of distributors of electrical appliances, TV and radio sets and parts, and electronic equipment and parts in May

were up 13% from the year-ago level and 9% above April. Their sales for the first five months of this year gained 7% compared with the like year-ago period.

The distributors' end-of-May inventories were 9% larger than

at the end of the same month of 1955 but declined 5% from the April 30 level.

May sales of all types of merchant wholesalers as a group rose 9% over April sales and were 14% higher than sales in

May, 1955. Sales during the first five months of 1956 were 11% above those of the comparable 1955 period. Inventories on May 31 were at about the same level as on April 30 but were 10% above 1955 stocks.

Firm Granted Charter

SAN ANTONIO — Charter of incorporation has been granted Kerr Air Conditioning and Heating Co. Incorporators are James S. Kerr, Harvey G. Kerr, and Wallace M. Kerr.

NEW KRACK LOW TEMPERATURE Electric Defrost Unit Cooler Completely Automatic

- Fewer defrost periods needed.
- Insulated cabinet retains, circulates heat when closed . . . speeds defrosting.
- Internally wired for easy installation.

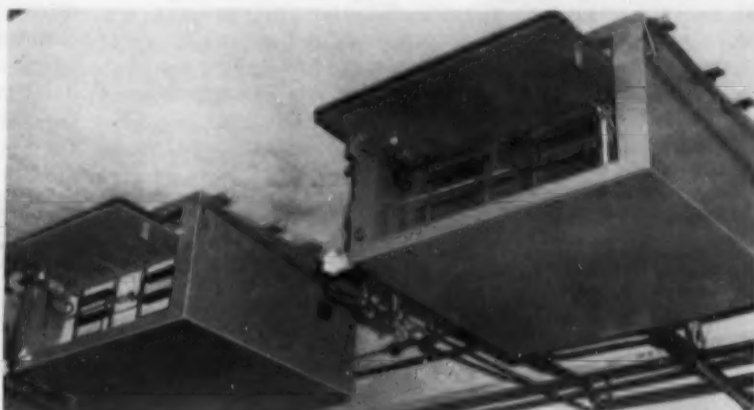
GET NEW BULLETIN ED-1055 for details and specifications!



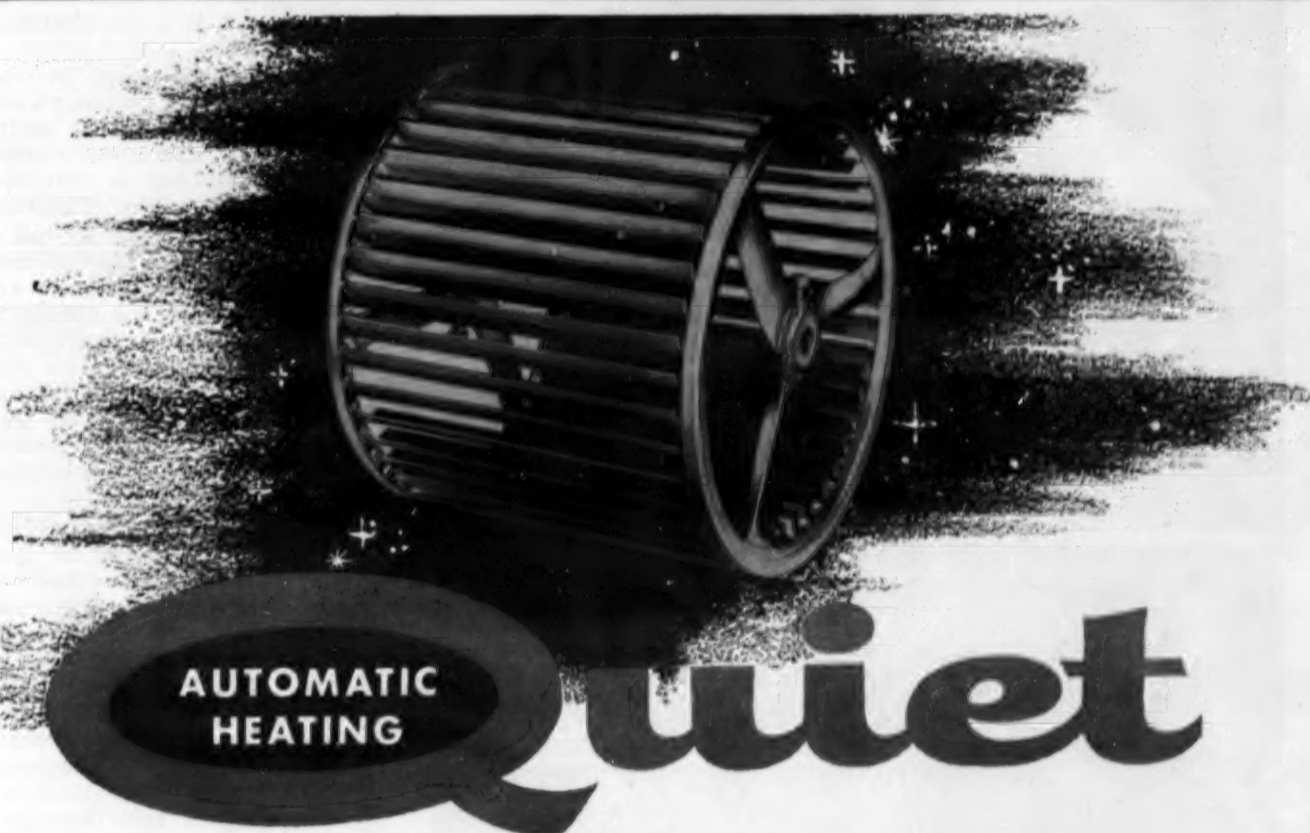
REFRIGERATION APPLIANCES, INC.

901 W. LAKE ST., CHICAGO 7, ILL.

25th Anniversary in Refrigeration and Air Conditioning



WHOLESALE: United Refrigeration Supply. CONTRACTOR: Poletti Refrigeration Service. USER: Liberty Cash Grocery Warehouse, Memphis, Tenn.



made possible with the
MORRISON
precision-built blower!

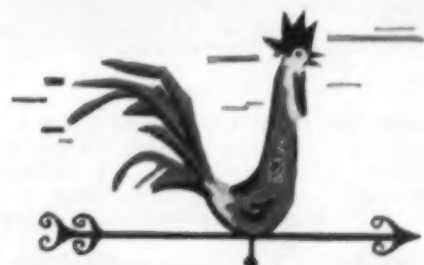
For the even distribution of Air — conditioned to just the right temperature for comfort at its best — Morrison is contributing to much of the finest heating and air-conditioning equipment on the market today.

Of almost equal importance to the even flow of air, is the element of quiet operation.

This is a prime demand of DELTA as "DELTA HEATS AMERICA AUTOMATICALLY!"

It has been a happy experience working with this firm to help build for "comfort at its best".

Write our engineers about your Blower problems. Ask for Blower catalog.



MORRISON blower used in above unit

MORRISON PRODUCTS INC. 16816 WATERLOO RD. CLEVELAND 10, OHIO

For more information about products advertised on this page use Information Center, page 20.

Worthington Ups Seel In Engineering

HARRISON, N. J.—Frederick B. Seel has been promoted to an assistant manager of engineering at the Holyoke Div. of Worthington Corp., according to S. R. Hirsch, manager of engineering.

Seel will assume engineering administrative responsibility for air conditioning and refrigeration products manufactured at the Holyoke Div.

Prior to joining Worthington

in 1951, Seel was associated with Westinghouse Electric Corp., East Springfield, Mass., and the Firearms International Corp. of Washington, D. C. He is a Navy veteran of World War II.

Previous to his present appointment, Seel served as chief engineer of the residential section of the Air Conditioning & Refrigeration Div.

Seel is a member of the Amer-

ican Society of Refrigerating Engineers and the Engineering Society of Western Massachusetts. He is presently a member of the Joint Test Code Committee of the American Society of Refrigerating Engineers-American Society of Heating & Air Conditioning Engineers, and represents Worthington on the Residential Air Conditioning Engineering Committee of the Air-Conditioning & Refrigeration Institute, the report further stated.

Servicing Weathertron Heat Pumps (3)

Originally just a theory and for many years subject only to occasional experimental installations, the heat pump of late has developed into a practical and expanding business.

Its future was never brighter.

Design, manufacturing, sale, installation, and service of the heat pump have already become important factors in the air conditioning industry, and are bound to grow.

In recognition of the present stage of development, and the expected future, the NEWS is presenting herewith a series of articles on servicing a specific make of heat pump—the General Electric air-to-air "Weathertron."

This instalment continues the discussion of How the Weathertron heat pump works.

HEATING CYCLE

Using Fig. 2 as a reference, the refrigerant flow for the heating cycle is outlined as follows:

1. The hot gas from the compressor flows through the discharge line to the switchover valve.

2. With the electrical controls calling for heating, the pilot solenoid valve is de-energized exposing suction pressure to the switchover valve control piston. The switchover valve then is positioned so that the hot gas is channeled to the indoor coil.

3. The indoor coil acts as a condenser during the heating cycle. The indoor air passing over the coil absorbs the latent heat of vaporization and some sensible heat from the refrigerant causing it to condense from a gas to a liquid. This warmed air provides the means by which the home or conditioned space is heated.

4. The liquid refrigerant collecting in the coil flows to the accumulator which acts as a storage or surge tank during heating (slightly more refrigerant is required during cooling).

5. The liquid leaving the accumulator flows through both the cooling and heating capillary tubes and is metered in the outdoor coil (there is no measurable flow through the override capillary since the override solenoid valve is open).

6. The check valve prevents refrigerant flow through the

dryer and directs it through the heating capillary.

7. On heating, the outdoor coil acts as an evaporator extracting heat from the outdoor air passing over it.

8. The refrigerant in the form of gas leaves the outdoor coil and is channeled to the switchover valve.

9. With the electrical controls calling for heating the switchover valve is positioned so that the gas flows to the suction side of the compressor.

10. The refrigerant gas returning to the compressor is recompressed and a new cycle is started.

DEFROST CYCLE

While the Weathertron is operating on the heating cycle, frost and ice can build up on the outdoor coil under certain atmospheric conditions. This condition exists when the outdoor air temperature is below 45° F. with a high relative humidity. Moisture condensing on the coil will be below the freezing point, thus causing a build-up of frost and ice on the coil.

When an excessive amount has built up, the defrost sensing switch is actuated and the unit starts a defrost cycle. During a defrost cycle the electrical controls operate the Weathertron on a refrigerant cycle the same as described for cooling.

The only differences on defrost from cooling are:

1. The outdoor fan is shut off so that all the heat in the hot gas is used for melting the ice rather than being dissipated to the outdoors.

2. The supplementary heaters are turned on to temper the indoor air.

Electrical Controls

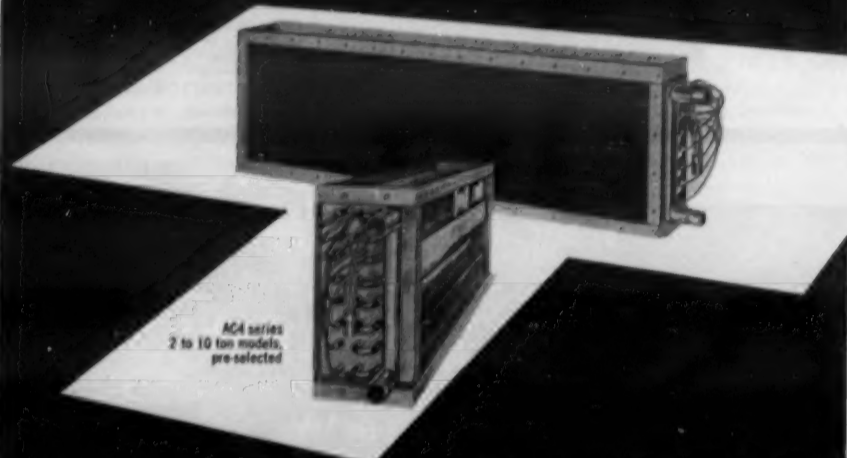
The Weathertron control system is composed of several individual circuits that work together to provide completely automatic year-round air conditioning. Following is a step by step description of the operation of these circuits. One point that must be remembered is that whenever a relay coil is energized all the contacts on that relay change position.

On electrical diagram (Fig. 3) all the relays are shown with no power on the coils and all pressure switches are shown at atmospheric pressure. The defrost sensing switch (SP) is shown with no pressure difference across it (contacts open). The Weathertron thermostat is shown satisfied.

The third cylinder cut out (normally open contacts at room temperature) is shown at an outdoor temperature below 30° F. (contacts closed).

(Continued on next page)

OUTSTANDINGLY DIFFERENT!



EASY TO INSTALL, VERSATILE TENNEY AIR CONDITIONING COILS FOR GREATER REFRIGERATION EFFICIENCY

Tenney AC4 air conditioning coils are pre-selected for specific standard applications—skillfully engineered to successfully handle the widest range of air conditioning requirements.

Exclusive universal suction connections easily adapt Tenney coils to any direction of air flow.

Tenney manufactures a complete line of coils proven in service for every application—individually inspected and tested.

For complete information write for Bulletin 103-54 TODAY!

TENNEY CONSTRUCTION FEATURES

- Aluminum Facetair® fan for greatest heat transfer and dehumidification efficiency.
- Fins mechanically bonded to copper tubing.
- Extra heavy gauge galvanized steel end, top, and bottom plates (aluminum on request).
- Controlled copper welding—completely scale-free tubing.
- Pressure-type distributor supplied—fits any valve.

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ENGINEERING, INC.
1090 SPRINGFIELD ROAD, UNION, N. J.
Plants: Union, N. J. and Baltimore, Md.

PIONEER MANUFACTURERS OF REFRIGERATION AND ENVIRONMENTAL EQUIPMENT

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Are you getting your money's worth from your present Drier?

Only DFN Filter-Driers have a high-efficiency, high-capacity Filter *ahead* of the desiccant to keep sludge and foreign matter from clogging pores and reducing drying action.

**Plus
Extra Filter
at Outlet**
to protect expansion
valve and parts



In driers that lack adequate inlet filtration, the desiccant must act as a filter, thus becomes dirty, clogged, inefficient. In DFN Filter-Driers, filters do the filtering—desiccants do the drying.

DFN Filter-Driers assure a clean desiccant that gives full-strength drying—takes up more moisture—needs less replacement. Choice of Permagan, Silica Gel or Activated Alumina at leading wholesalers everywhere.



DRIERS • FILTERS • STRAINERS

The McIntire Company
Livingston, N. J.

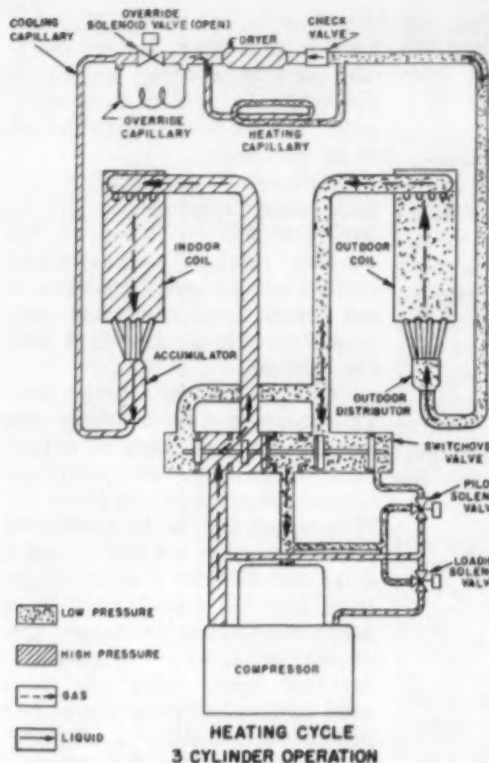
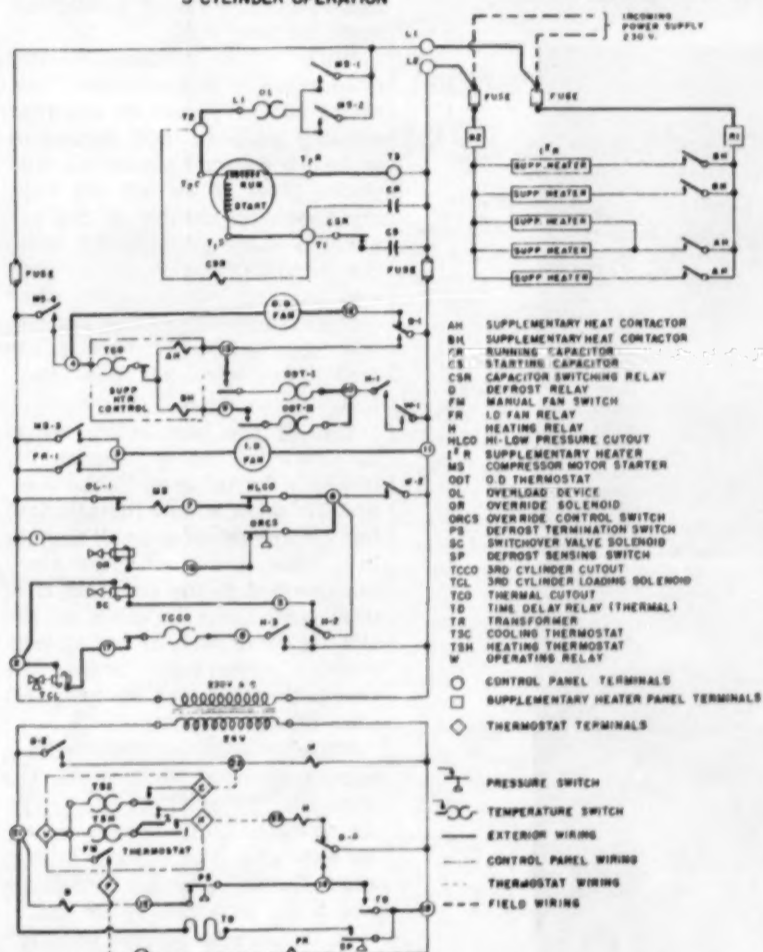
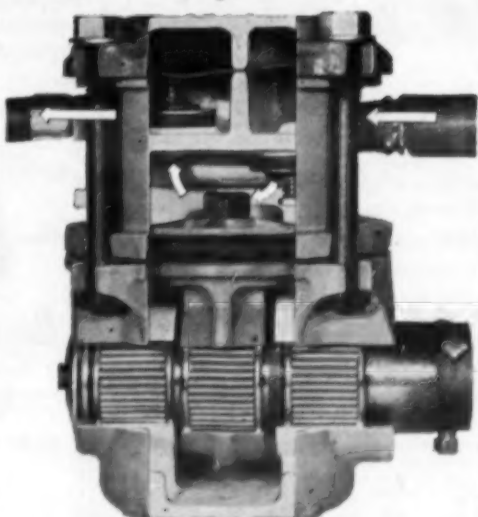


FIG. 2 — Refrigerant flow when G-E Weathertron is on heating cycle.



Solve your service problems with the ACE Diaphragm Descaling Acid Pump.

- All parts in contact with descaling compounds are acid resistant . . . Neoprene diaphragms . . . nickel-iron pumping chamber. Stainless steel valve parts.
- Entire unit is portable . . . pump and motor mounted on sturdy base with convenient carrying handles.
- Manufactured and guaranteed by the makers of the *complete* line of Ace cooling tower circulating pumps . . . $\frac{1}{4}$ H.P. thru 7 $\frac{1}{2}$ H.P.



Heat Pumps --

(Continued from preceding page)

COOLING CYCLE

When the room thermostat calls for cooling, the cooling thermostat contacts TSC close energizing working relay coil W. When W is energized, relay contacts W_1 and W_2 both close. W_1 has no effect since heating contact H_1 is open. However, when W_2 closes, three things happen:

- (1) Power is supplied to the switchover valve solenoid (SC) through contact H_2 . When SC is energized, the switchover valve is positioned to direct the refrigerant for cooling.
- (2) The motor starter MS is energized and all the MS contacts close, thereby supplying power to the compressor motor and the outdoor and indoor fan motors. Since the switchover

valve is positioned for cooling, the unit starts on its cooling cycle.

- (3) The override solenoid (OR) is energized. As long as OR is energized the override capillary will be by-passed.

OVERRIDE CONTROL

The override capillary introduces additional restriction in the refrigerant circuit and lessens the possibility of high pressure cut-out, by reducing the head pressure. This capillary is normally by-passed by means of a standard solenoid gate-valve OR which is open when energized.

At OD temperatures above 100° F. the head pressure starts to become excessive. At this point the override control switch ORCS opens, de-energizing the override solenoid OR. When OR is de-energized it closes, thereby forcing the refrigerant to flow through the override capillary

reducing the head pressure in the system.

When the head pressure falls the override control switch ORCS closes again; the override solenoid OR is energized and opens: the override capillary is by-passed; the head pressure rises again and the entire process repeats itself. There is then a slight cycling of pressure when the override capillary is operating.

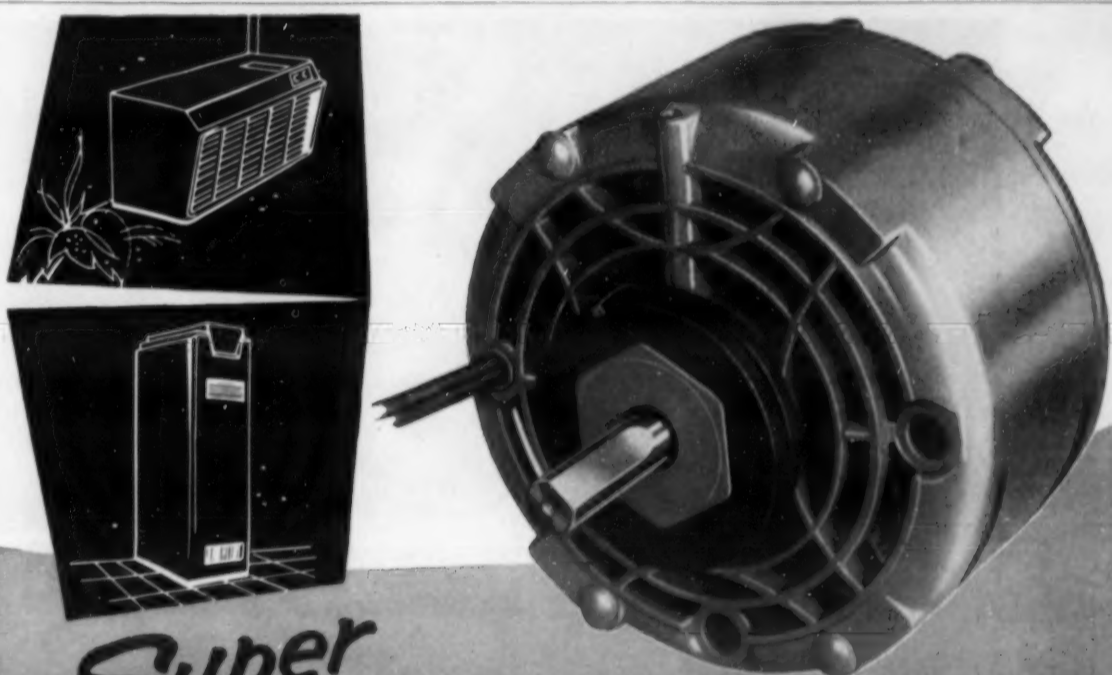
(To Be Continued)

Sam Bloom Dies, Pioneer In Field

CHICAGO — Samuel Bloom, 67, a mechanical engineer, died here recently, apparently of a heart attack.

A pioneer in the refrigeration field, Bloom founded the firm that helped install the first air conditioning system, it was reported.

He was a past vice president of the American Society of Refrigerating Engineers.



Super SHADED POLE MOTOR

for air conditioning and air moving applications

Gives Your Product These Sales Advantages

Long life . . . quiet operation . . . high operating efficiency . . . lasting good appearance — these sales-stimulating motor advantages are assured your product when it is teamed with a Lamb Electric *super* shaded pole motor.

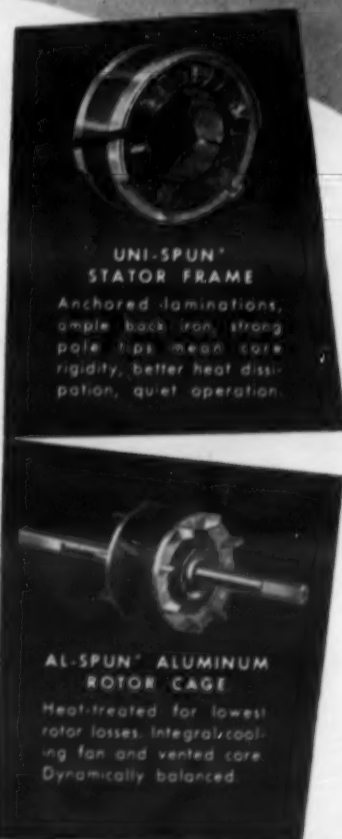
Reflecting our 41 years of experience successfully powering many types of household appliances, these advantages result from the following features:

- **UNI-SPUN* STATOR FRAME** for maximum rigidity
- **HIGH DIELECTRIC** slot insulation and extra varnish treatments
- **AL-SPUN* ALUMINUM ROTOR CAGE** for maximum conductivity
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- **BEARINGS** widely spaced, amply dimensioned
- **AMPLE OIL RESERVOIR . . .** positive oil circulation
- **SHAFT** precision ground to controlled surface finish
- **MOUNTING** absorbs vibration
- **ADVANCED DESIGN,** quality materials, and up-to-date manufacturing methods
- **FINISH . . .** moisture and abrasion-resistant

Our district engineers will be glad to demonstrate the advantages of Lamb Electric *super* shaded pole motors for *your* products.

THE LAMB ELECTRIC COMPANY • KENT, OHIO
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SPECIAL APPLICATION
FRACTIONAL HORSEPOWER **MOTORS**



Refrigeration Problems And Their Solution

By Paul Reed

For Service and Installation Engineers



Comparison of Refrigerants 12 & 22

(Continued)

In comparing the solubility of water in liquid 12 and 22, at liquid line temperatures of 80, 90, and 100°, we find that 22 can hold from 11 to 14 times as much moisture in solution as 12. However, that is not a complete picture.

Take the previous example of a 0° evaporator and 100° liquid, but using 22 instead of 12. If the 100° liquid 22 is saturated,

it can hold 1,800 ppm moisture, which becomes 308 ppm at 0°. Therefore it loses 1,800 - 308, or 1,492 ppm of moisture to freeze into ice.

At the same temperatures, 12 lost 156.7 ppm, so 22 can form 9½ times as much as (1,492 ÷ 156.7) as 12.

In this example, we assumed that the liquid 12 and 22 were both saturated. This often happens with 12, for it does not take much moisture to saturate it, but it takes a great deal of water to saturate liquid 22. As a result, since 22 can dissolve so much more moisture and still not be saturated, there is much

less likelihood of freeze-ups with 22 than 12.

This means that almost 10 times as much moisture can get into a 22 system as a 12 system at the same temperatures and still not cause freeze-ups. In other words, we can be a lot more careless, as far as keeping the system dry is concerned, with 22 as with 12. Human nature being what it is, quite naturally we take advantage of this characteristic of 22, and as a result, 22 installations in the field are, as a rule, running far wetter than 12 systems, for the simple reason that the 12 systems have to be extremely dry and the 22 systems don't that is, as far as freeze-ups are concerned.

But is there any harm in having this additional moisture in the system? Even if it does not cause freeze-ups, can it cause trouble? The answer is definitely yes. Systems using 22 should

be as dry as 12 systems, and there is field evidence that the 22 system should be even drier than the 12 system.

Actually, there is no positive information on what the corrosion level is with either 12 or 22. John Bopp of Ansul has done some work that leads him to believe that 20 to 30 ppm should not be exceeded in 12 systems. Service managers of some of the prominent manufacturers of motor-compressors, which is one of the first places that corrosion shows up, are inclined to feel that the corrosion level is no higher than 10 ppm for either 12 or 22.

Each of these refrigerants comes from Kinetic or General at a moisture content of not more than 10 ppm. If this is not to be exceeded in the system, the equipment must be bone dry. The factory must dry it down to as nearly no surface film moisture as humanly possi-

ble. People in the field must keep it that way, for no moisture can be allowed to get in above the 10 ppm in the refrigerant, if a 10 ppm content is not to be exceeded.

We know that we must expect some moisture to get in during service, so when we are working against such absolute limits, we are going to have to use driers to remove what little moisture unavoidably gets into the system.

Since 22 can be wetter than 12 and still not cause freeze-ups, we are going to have to expect that, ordinarily, we must use bigger driers on 22 than on 12. How much bigger is a debated point. Some are willing to use a drier for 22 just a little larger than for 12; others say use a drier five times as large. The choice will have to be governed by how much care has been used in keeping moisture out of the system, and by good judgment of how much moisture must be removed.

With 12, in systems having evaporator temperatures of about 20° or lower, we are reasonably safe in not having a moisture content above the corrosion level, if we are not having freeze-up trouble at the expansion valve or capillary tube, the head pressures are normal, and we keep alcohols or other contaminants out of the system. We have seen that this is far from true with 22. How then can we tell with 22?

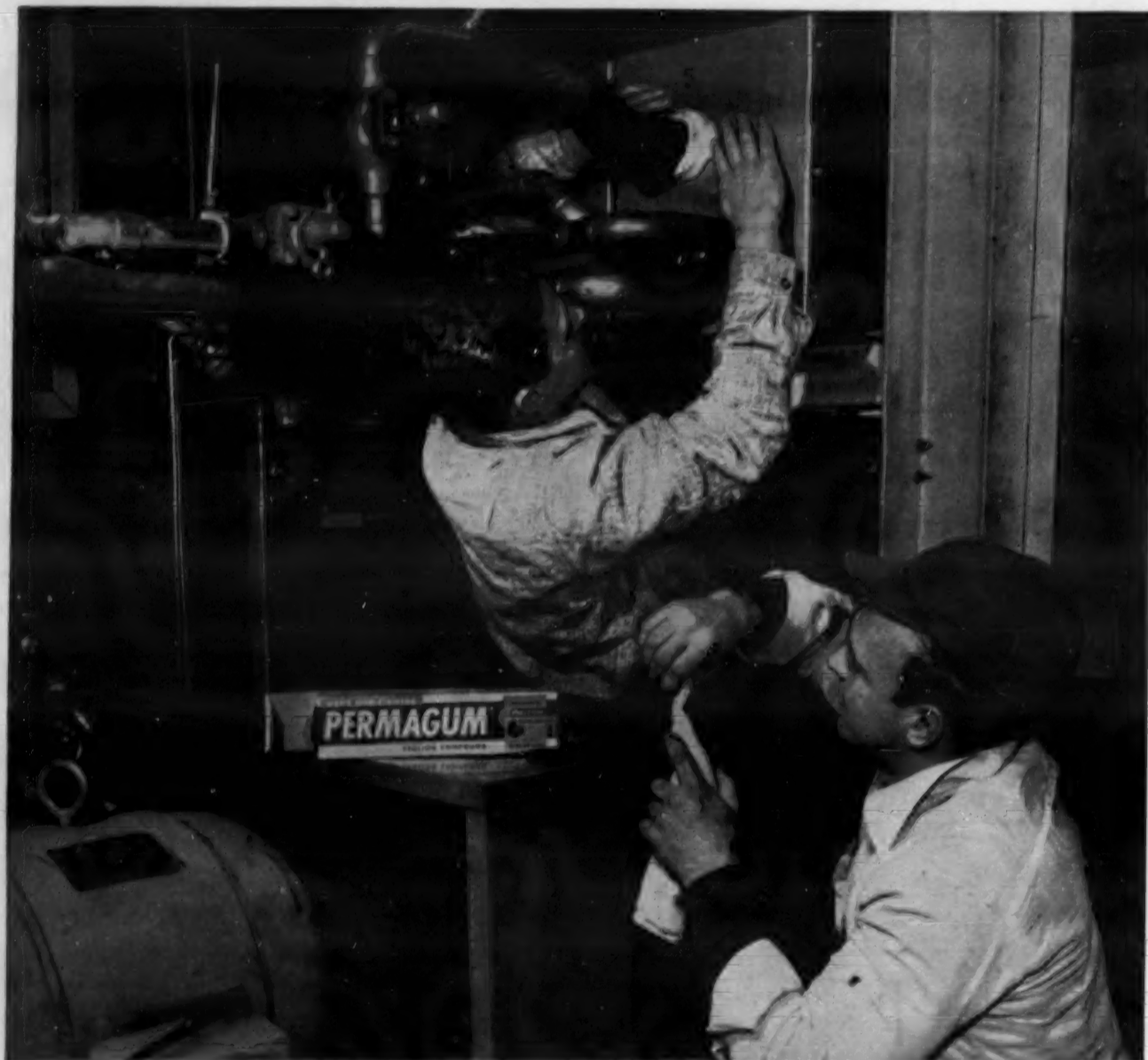
One of the best indicators is the color of the oil. Inspect it, not only for oil level in the compressor after a new installation, but also draw off a small sample in a clean bottle of clear glass and inspect it for color. If it is darkened, there is chemical action of some sort, including corrosion, occurring. Drain the crankcase and put in new oil; also change driers.

Check again in at least a couple of weeks, and repeat the above until the oil stays as clean as new oil. Only then can you be sure that the system is dry, regardless of whether freeze-ups are being experienced or not.

Also, don't overlook high condensing temperatures, poor air circulation over the unit—particularly the compressor, and the other points brought out as factors in excessive discharge temperatures as contributing to oil decomposition.

Does this sound like too much trouble? Those who follow these practices say that they pay good dividends in lower cost of service.

(To Be Continued)



Permagem makes a perfect seal every time

Manufacturers and service men alike prefer the positive sealing action they get from Permagem. Used to seal inspection plates, pipe and conduit openings, refrigeration and display cases, Permagem eliminates the host of troubles which condensation can bring down on your head—from just plain heat loss to ruined insulation.

These men are using gray-white Permagem, which is odorless, never hardens, and can be painted

over immediately after application. Since it won't attack insulation, it is ideal for use around electric wiring, rubber or plastics. Brown Permagem is a heavy-duty sealer which will adhere to any dry surface and remain pliable from 0° to 350° F. Both forms come in 2½ lb. and 55 lb. slugs, while gray-white Permagem is also available in 80 ft. rolls of ¾" cords and 20 ft. rolls of ⅜" cords.

Your wholesaler has Permagem

—or write Refrigeration Division, VIRGINIA SMELTING Co., 119 Jefferson St., West Norfolk, Va.



ESOTOOL-KINETIC CHEMICAL'S "FREON" REFRIGERANTS-V-METH-L CAN-O-GAS-PERMAGUM-PRESSTITE TAPE-KWIKWRAP-SUNISO REFRIGERATION OILS-WATER TREATMENT CHEMICALS Available in Canada and many other countries



Won't attack electrical insulation.



Seals pipe openings permanently.



Perfect for refrigeration and display cases.

ROTARY SEAL

Replacement Units

Available in a wide size range for Commercial, Semi-Commercial, Air Conditioning and Home Refrigerators.

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2026 NORTH LARRABEE STREET CHICAGO 14, ILLINOIS, U.S.A.

National Lock Breaks Ground for \$5 Million Plant

ROCKFORD, Ill. — National Lock Co. broke ground recently for a \$5 million fastener plant.

Located on a 167-acre site, the structure will provide over 600,000 sq. ft. of floor space and will be "the largest single-story plant in the world devoted exclusively to the manufacture of screw and bolt products," the company said.

National Lock, in its present quarters which it will continue to occupy, utilizes over 1 million square feet of floor space and employs over 4,000 persons.

Besides fasteners, the company also makes a complete line of range and refrigerator hardware, furniture trim, cabinet and builders hardware, door locksets, die castings, casters, and molded plastic products.

Examiner Affirms Installing Firms Right To Hire Regardless of Union Standing

WASHINGTON, D. C.—Trial Examiner James A. Shaw has recently recommended to the National Labor Relations Board that United Association Local 392 in Cincinnati be required to cease and desist from maintaining an agreement with Carrier Corp. in Cincinnati which contains or involves oral terms and conditions of employment requiring membership in good standing in Local 392.

He further recommended that Local 392 cease causing or attempting to cause Carrier to engage in the practice of requiring employees to obtain clearances or job referrals from it as a condition of employment, except under a non-discriminatory arrangement permitted by the National Labor Relations Act.

He would also have the local

cease restraining or coercing employees or applicants for employment in exercising their rights to self-organization, it was explained.

These recommendations were made as the result of a complaint by a pipefitter-welder named William C. Lester. Lester complained that he had lost his job with Carrier solely because he was not a member in good standing with the union.

Because the local and its business agent caused Carrier to refuse to reinstate him on those grounds, he charged that the local was causing Carrier to encourage membership in the union, which is an unfair labor practice.

The local and the business agent denied committing any unfair labor practice.

Lange Joins D-H as Refrigeration Sales Application Engineer

LOS ANGELES — Harvey Lange has joined Drayer-Hanson as sales application engineer, it is announced by Harold T. Hunt, general manager.

Lange recently completed a two-month special projects assignment in the company's design-development section, and has been transferred to the Commercial Div., under National Sales Manager Fred E. Schmuck.

His key duties will be O.E.M. and commercial refrigeration sales, as well as servicing liaison with the company's factory representatives throughout the country.

Lange is experienced in refrigeration contracting, installing, and servicing. He was most recently refrigeration superintendent with Paul Hardman Co., Inc., Los Angeles, mechanical contractor-engineer, specializing in government refrigeration and air conditioning work.

His year association there was preceded by five years with Worthington Corp., Los Angeles, as regional field engineer, where he covered the 11 western states in servicing and engineering capacities.

Prior to the Worthington post, Lange operated his own business for many years in Los Angeles, specializing in installation and servicing of ammonia, "Freon," and both high and low temperature systems.

Copeland Names Bodine In Educational Services

SIDNEY, Ohio — Dale H. Bodine has rejoined Copeland Refrigeration Corp. as manager of educational services. He was with Copeland from 1939 to 1952 as service manager, when he left to become part owner and general manager of Allied Supply Co., Lima refrigeration equipment wholesaler.

He joined the Kelvinator Co. in 1929. In 1935 he was named national service representative for Universal Cooler Corp.

At Copeland Bodine will supervise educational training programs offered by Copeland to the entire refrigeration industry.

Wolverine Opens New Mill Depot In San Francisco

SAN FRANCISCO — A new mill depot has been opened in San Francisco to serve the customers of Wolverine Tube, Div. of Calumet & Hecla, Inc., it was announced.

The establishment of this new depot will facilitate shipping service to customers in the northern California area.

John A. Marshall, vice president of Van D. Clothier, Inc., will coordinate the new Wolverine mill depot operation from the San Francisco office, it was added.



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MAKES AIR-CONDITIONING SALES Grow!

Sales are busting out all over for O.E.M.'s and dealers who put DACOR filters in their window coolers. DACOR slips easily into regular dust filter slot, cleans air of smog, smell, stuffiness. Turns a cooler into a true air conditioner, adds the competitive edge you need to make sales sizzling hot!

- DACOR removes pollen, dirt, odors
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City..... State.....

Trane Shipments Rise 45% Above 1955 Period To Set All-Time Record

LA CROSSE, Wis. — Record total shipments of The Trane Co. are currently running 45% ahead of a peak 1955, D. C. Minard, president, revealed recently. Trane manufactures air conditioning, heating, ventilating, and heat transfer equipment.

Speaking during the opening session of the 21st engineering student training program at Trane, Minard, who started as a student engineer in 1925, went on to emphasize that Trane is "in the big leagues" in air conditioning and heating.

He noted that sales of air conditioning and heating units would "continue strong" provided the steel strike does not bring down the entire economy of the country.

Earlier he announced that Trane would not experience any

immediate effects of the steel tie-up inasmuch as the company had accumulated a larger-than-usual steel inventory.

Keynoting this talk directly to the university engineering graduates, who this year total over the 30 mark, Minard revealed that competition in air conditioning "remains keen," but that this was to be expected. He observed that Trane has the organization to satisfactorily cope with it.

The new training class enrollment brings to nearly 400 the number of engineers who have undergone the company's special education program. Of this group, over 60% are still with the organization, either in La Crosse with the home plant or with the sales organization of 105 outlets in the U. S. and Canada.

First Truck Load of Fruit from California To N. Y. Is Perfect

ROCHESTER, N. Y. — What is claimed to have been the first truck load of fruit ever transported here from California was delivered to the fruit and vegetable department of Eber Bros. Co. in perfect condition, reportedly.

The refrigerated truck made the 3,200-mile trip in four and a half days, driven by two teams of two drivers, the second relieving the first in Iowa.

Previously, all shipments of fresh fruit from California to Rochester have been by railroad, a trip lasting a week or more.

J. L. Kaufhold Elected Weber Vice President

LOS ANGELES — J. L. "Jerry" Kaufhold, who for the past 30 years has held various managerial positions with the Weber Showcase and Fixture Co., Inc., has been elected vice president, according to an announcement by the board of directors.

Kaufhold is general manager of the firm's National Commercial Refrigeration Div.

Hotpoint Has Dealers Chart 'Conditioners for Every Need'

CHICAGO — A new dealer sales flip chart entitled "An Air Conditioner for Every Cooling Need" has been announced by the refrigeration department, Hotpoint Co.

According to D. H. Grigsby, merchandising manager, the 18-page chart points out the key selling features of all Hotpoint models. It's a two way chart: distributor's presentation to dealers and the dealer's presentation to prospects.

WANTED — FIELD SERVICE SUPERVISORS

Old, established, nationally-known appliance manufacturer is expanding service field force. Has openings in various territories for experienced men.

Write in confidence to BOX A5582, Air Conditioning & Refrigeration News.

Your Sales are the payoff

LA CROSSE
THE LINE THAT'S PROFIT DESIGNED FOR YOU

3000 LOREY BLVD., SO.
LA CROSSE, WISCONSIN

EXPORT OFFICE:
80 BROAD ST.
NEW YORK CITY
CABLE: EXIMPORT

ADD DOLLARS

by adding the Aristocrat Floral Refrigerators to your present line.

The new improved features of Aristocrat styled floral refrigeration line include:

- A super large picture frame front
- High polish stainless steel finish
- Attractive sky-blue background
- Lifetime, double ball bearing (twin window) sliding doors

Distributor inquiries invited—write or visit

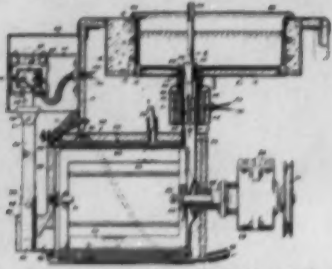
Aristocrat Distributing Co., Inc.

99 University Place New York 3, N. Y.

PATENTS

Week of March 6

2,737,084. DISPENSING FREEZER. Harvey F. Swenson, Seattle, Wash. Application Jan. 18, 1951, Serial No. 206,230. 15 Claims. (Cl. 62-2.)

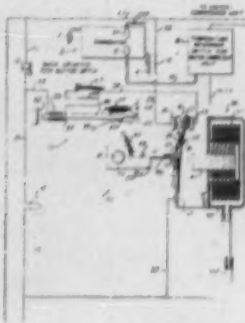


1. In a dispensing freezer, and in combination with a freezing cylinder and with an associated tank containing a replenishing supply of the mix which is to be frozen in the cylinder, a discharge opening from the cylinder for dispensing the frozen mix, a valve for said opening, an electrically operated device for opening said valve, an electrically operated device for delivering replenishing charges of mix from the tank to the cylinder, separate normally incomplete electric circuits for each of said electrically operated devices, and selectively employed switches for closing said circuits so wired in the circuits as to permit the electrically operated devices to be activated either simultaneously or one independently of the other.

2,737,025. AUTOMATIC DEFROSTING MEANS FOR REFRIGERATION APPARATUS. Edgar M. Soren, Skokie, and Irving Gebel, Oak Park, Ill., assignors, by mesne assignments, to Soren Products Corp., a corporation of Delaware. Application Oct. 8, 1952, Serial No. 313,708. 6 Claims. (Cl. 62-3.)

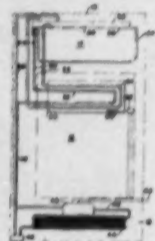
3. In an electric refrigerator of the type having an evaporator, electrically operated defrosting means for the evaporator, and a door: a door operated switch arranged to close as a consequence of opening of the refrigerator door; a two position defroster switch for the defrosting means movable from a defrosting position to a second circuit controlling position in which it is in series circuit with the door operated switch and renders the defrosting means inoperative; a member mov-

able through a predetermined range of travel; electrically operated control means governed jointly by said door operated and defroster switches and connected with said movable member to move the same part way through its range of travel each time the door is



opened as long as the defroster switch is in said position thereof in series circuit with the door operated switch; and means operated by said movable member as a consequence of movement thereof through its predetermined range of travel for effecting shifting of said defroster switch from its second circuit controlling position to its defrosting position, so that said electrically operated control means is rendered inoperative whenever defrosting is taking place.

2,737,036. REFRIGERATING APPARATUS. James W. Jacobs, Dayton, Ohio, assignor to General Motors Corp., Dayton, Ohio, a corporation of Delaware. Application April 17, 1952, Serial No. 282,921. 5 Claims. (Cl. 62-4.)

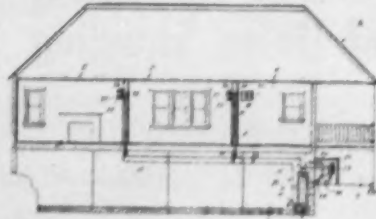


1. In a refrigerator having a frozen food compartment and an unfrozen food compartment, a refrigerating system comprising first evaporator means in said unfrozen food compartment, second evaporator means for refrigerating said frozen food compartment, said first evaporator means having a first evaporator section and a second evaporator section, refrigerant liquefying means, means for conducting liquid refrigerant from said refrigerant liquefying means to said first evaporator section and thereafter into said second named evaporator means, and means for conveying refrigerant from said second named evaporator means directly to said second evaporator section.

2,737,027. AIR CONDITIONING STRUCTURE. Herman W. Kleist, Chicago, Ill., assignor to Dole Refrigerating Co., Chicago, Ill., a corporation of Illinois. Application Nov. 4, 1950, Serial No. 194,141. 3 Claims. (Cl. 62-6.)

1. In an enclosure cooling system with stand-by refrigeration, a plurality of generally upright parallel spaced evaporation elements, each having an evaporator coil enclosed in a plate, means for intermittently cycling a

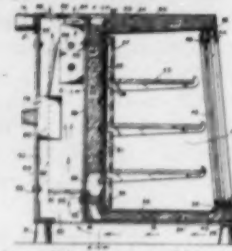
volatile refrigerant through the coils, means for obtaining stand-by refrigeration including a water container sur-



rounding the evaporator elements so that its interior is in heat exchange relationship with them means, for circulating cool water through the container and withdrawing it including a water circuit having a water run-off in liquid communication with a heat exchange member, the adjacent faces of the plates and sides of the container defining a plurality of parallel water passages, water return spouts on the opposite side of the container from the run-off and generally aligned with the water passages, each evaporator element being filled with a eutectic surrounding the coil for obtaining additional stand-by refrigeration, means for controlling the cycling of the refrigerant in response to temperature

variations in the container adapted to terminate the refrigerant cycling when a predetermined layer of ice has accumulated on the plates, and means for maintaining a heat exchange relation between said heat exchange member and the air to be cooled in the enclosure.

2,737,029. REFRIGERATED DISPLAY CASES. Fred C. Krasner and Milton M. Graupe, Chicago, Ill. Application Aug. 4, 1952, Serial No. 302,514. 7 Claims. (Cl. 62-28.5.)



1. A refrigerator adjunct for the frontal food compartment of a display case comprising a refrigerator machine compartment applied behind said food compartment, a heat-insulation unit between the compartments, a refrigerating coil along the rear side of said

food compartment, and means for clamping the compartments together, said unit having a backing sheet, a top sheet, overlying the food compartment in spaced relation and having a terminal downflange at the rear of the display case, and spacing means between said backing sheet and downflange, said top sheet and spacing means being perforated for the upward escape of warm air from said refrigerator machine compartment.

2,737,030. REFRIGERATING SYSTEM HAVING DEFROSTING ARRANGEMENT. Lawrence A. Philipp, Detroit, Mich., assignor to Nash-Kelvinator Corp., Detroit, Mich., a corporation of Maryland. Application Dec. 21, 1951, Serial No. 262,909. 1 Claim. (Cl. 62-116.)

Refrigerating apparatus comprising a cabinet having a chamber, a motor-compressor unit, an evaporator in said chamber, a condenser, a restrictor, conduit means connecting said unit, evaporator, condenser and restrictor in series circuit relation, said conduit means including an enlarged portion the inlet of which is connected to the outlet of the restrictor and the outlet thereof to the inlet of the evaporator, said enlarged portion being in

(Continued on next page)

CLASSIFIED ADVERTISING

RATES for "Positions Wanted" \$7.50 per insertion. Limit 50 words. 15¢ per word over 50.

RATES for all other classifications \$10.00 per insertion. Limit 50 words. 20¢ per word over 50.

ADVERTISEMENTS set in usual classified style. Box addresses count as five words, other address by actual word count. Please send payment with order.

POSITIONS WANTED

SALES REPRESENTATIVE now available, 34 years old, (BSME). 2 years of engineering and 8 years successful experience in establishing and promoting distribution in: window units, residential, and package units. Proven sales record. Seeks opportunity with challenge. Located in Baltimore, Maryland. BOX A5574, Air Conditioning & Refrigeration News.

AIR CONDITIONING, refrigeration installation and service mechanic. Married, vet, 10 years of practical experience on residential, commercial and industrial equipment. Served and installed Brunner, Carrier, Westinghouse, York and etc. from 1/2 to 100 h.p. Seeks employment with progressive firm. Prefer Southern California or Southwest. BOX A 5575, Air Conditioning & Refrigeration News.

DISTRIBUTOR EXECUTIVE desires change to employment with manufacturer or well established distributor. Broad experience in dealer and wholesale sales, sales training, application, layout and estimating. Fully experienced in service and installation of equipment and all components as well as service training. Will travel. BOX A5576, Air Conditioning & Refrigeration News.

SALES ENGINEER, 29, married, having traveled for several years, desires connection with refrigeration wholesaler as branch manager, with limited or no travel. Past ten years' experience in industry includes four years as counterman and outside contact man for wholesaler. Interested in Georgia or Florida location. BOX A5581, Air Conditioning & Refrigeration News.

POSITIONS AVAILABLE

ENGINEER THOROUGHLY experienced in commercial and industrial air conditioning and refrigeration to head engineering department of old established Philadelphia distributor and contractor. Degree required. Excellent salary plus profit sharing plan. Please give details of experience and references. Replies confidential. Contact Ralph Lambert, ELLIOTT-LEWIS CORPORATION, 16th. & Hamilton Streets, Philadelphia, Pa.

MANUFACTURER'S REPRESENTATIVE to sell special items of commercial refrigeration, which will be fill in items for established dealers. Territory, New York, Pennsylvania, Midwestern or Southwestern states. THE C. SCHMIDT COMPANY, 1712 John Street, Cincinnati 14, Ohio.

FACTORY REPRESENTATIVE—established national manufacturer commercial refrigerators and store fixtures require the services of qualified field representatives under 45 years of age to cover New England and Middle Atlantic States. Experience in design and layout of super markets essential plus knowledge and contacts with wholesale and retail sales outlets for refrigerated equipment. Remuneration excellent for man with proper background. Submit complete resume to BOX A5583, Air Conditioning & Refrigeration News. Replies held in strict confidence.

ICE CREAM cabinet salesman under 45 years of age to cover protected eastern territory for national manufacturer of complete quality line of low temperature cabinets. Established sales background with ice cream manufacturer essential. Write complete resume, all replies are held confidential. BOX A5563, Air Conditioning & Refrigeration News.

REFRIGERATION WHOLESALE parts salesman wishing to relocate. Position now open in Southwest. Knowledge of heating and air conditioning controls an asset. Minimum of three years experience. Give all particulars in first letter. BOX A5572, Air Conditioning & Refrigeration News.

WAREHOUSE SUPERINTENDENT—Experienced cold storage warehouseman capable of taking full operating charge of a very large cold storage warehouse located in the midwest. Attractive salary and bonus arrangement. Write stating complete background and experience. BOX A5578, Air Conditioning & Refrigeration News.

WANTED: EXPERIENCED air conditioning man to start air conditioning department. Wholesaler of plumbing — heating — electric and refrigeration supplies, 37 years in business — Northern New Jersey. Good opportunity for advancement. BOX A5580, Air Conditioning & Refrigeration News.

DESIGNER—LARGE Midwestern manufacturer of air distribution equipment has opening in engineering department for designer of fabricated, spun, stamped and rolled metal devices. This is an excellent opportunity with rapidly expanding division of well-established company. All usual company benefits. Excellent working conditions. Write BOX A5583, Air Conditioning & Refrigeration News to arrange for interview.

AIR DISTRIBUTION engineers—Leading manufacturer of air distribution equipment has opening in development laboratory for several engineers and laboratory technicians for research and development of diffusers, grilles, volume control and high velocity devices. Excellent opportunity in fast-growing division of well-established Midwestern company. All usual company benefits. Excellent working and living conditions. Write BOX A5584, Air Conditioning & Refrigeration News to arrange for interview.

SALES ENGINEER: Due to expansion program, we are interested in obtaining the services of an additional sales engineer. An unusual opportunity for top earnings, advancement and profit sharing will be offered to man with successful background of engineering and selling by a leading brand air conditioning distributor and contractor in Richmond, Va. All replies in strict confidence. Address BOX A5585, Air Conditioning & Refrigeration News.

WANTED: HEATING and air conditioning engineer to head the design, engineering, laboratory testing and model shop. Experience in gas fired heating desirable, but not as essential as air conditioning. Plant located in excellent community with good school facilities and extremely good living conditions. Opportunity for qualified individual. All replies confidential. BOX A5586, Air Conditioning & Refrigeration News.

WANTED—MANUFACTURERS representatives: An established copper and brass tube mill with more than 50 years' experience, due to a recent expansion program, has several territories open to sell O.E.M. accounts on

a permanent basis. Send complete resume of experience and listing of lines currently selling. All replies held confidential. Write BOX A5587, Air Conditioning & Refrigeration News.

EQUIPMENT WANTED

WANTED USED refrigerators in working condition—Large lots of same model from apartments or projects, anywhere in U. S. No assorted trade-ins. BEACH REFRIGERATOR CO. 196-11 Northern Blvd., Flushing 58, New York. Phone Flushing 7-6161.

EQUIPMENT FOR SALE

ATTENTION SERVICEMEN: New, well-known brand hermetic compressors, 1/2, 3/4, 1 h.p. @ \$28.00, \$36.00, \$41.00. Surplus stock, limited supply. Contact J. Janesko at BEN-HUR MFG. CO., 634 East Keefe Ave., Milwaukee 13, Wisconsin.

NEW SELF contained Kesco automatic condensate water disposal pumps for air conditioners ice cube bins; at your local wholesaler; available in 10 and 20 foot heads.

NEW YORK, Abco Refrigeration, 1615 Second Ave.

MT. VERNON, Eastern Supply, 521 East Third Street

SYRACUSE, Gould-Farmer Co., 1020 W. Genesee Street

WHITE PLAINS, County Seat, 111 Central Ave.

NEWARK, N. J., Tesco Distributors 78 Boston Street

DAYTON, OHIO, W. H. Kieffer Co., Refrigeration Dept.

SACRAMENTO, CALIF., Associated Refrigeration, 1717 Eye Street

SEATTLE, WASH., Refrigerative Supply, 204 W. Republican

DETROIT 4, MICH., Lee Equipment Co., 4721 Joy Road

HIGHLAND PARK, MICH. J. M. Ober, Inc., 55 Oakman Blvd.

BRIDGEPORT, CONN., Parsons Bros., Inc., 2137 East Washington Ave.

Distributors write to KESCO PRODUCTS CORP., Springfield Gardens 13, N. Y. for sample pump and literature.

INTRODUCTORY OFFER—20 years of proved success, the "Blitzer" thermostatic expansion valve. Brass, adjustable, F12, any temperature application. One year unconditional guarantee.

Terms: send credit references or C.O.D. 1/2 ton \$7.30, 1 ton \$7.80. RUE TEN ENTERPRISES, 516 5th Avenue, New York City. Complete satisfaction or money refunded.

BUSINESS OPPORTUNITIES

FOR SALE: Established major appliance, heating and air conditioning sales and service. Over \$100,000 gross. Exclusive leading manufacturers' franchises. Located in Central Wisconsin. 35,000 population to draw from. Excellent location, building may be leased. Reason for selling—health. \$15,000 inventory. Write BOX A5588, Air Conditioning & Refrigeration News.

FRANCHISES WANTED

A SALES agency, New York City headquarters, specializing in refrigerated equipment. We cover the Eastern Seaboard, and are seeking another quality product to add to our line. We contact refrigeration dealers, dairies, ice cream companies and supermarket chains. Have complete sales and office staff, also showroom. Our organization is widely known in its field and holds memberships in the various trades we contact. Correspondence in strict confidence. Will visit your plant if your product interests us. BOX A 5585, Air Conditioning & Refrigeration News.

MISCELLANEOUS

ATTENTION SERVICEMEN: Send for free circulars and bulletins on refrigeration parts and equipment. Real money saving values: WALTER W. STARR; 2833 Lincoln Avenue, Chicago 13, Illinois.

CHIEF REFRIGERATION ENGINEER

Unusual opportunity for a well grounded man who wants and can take responsibilities.

SALARY OPEN

Location New York City—Our organization knows of this ad. Write in confidence to Box 1000, Realservice Advts. Agency, 110 West 34 St., N.Y.C.

Yours...CUSTOM QUALITY
with Production Economy!
PLASTIC • RUBBER
Molded and Extruded Parts



Request Geauga's new illustrated catalog. See how GI's advanced extrusion and molding techniques and finishing operations will give you better parts, and reduce your assembly costs. Design problem? Rely on GI's engineers for the cost-saving answer.

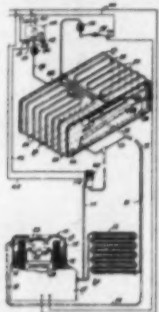
WRITE TODAY TO...

GI GEAUGA INDUSTRIES
MIDDLEFIELD, OHIO

PATENTS

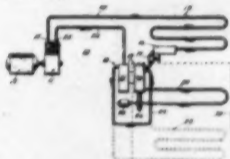
(Continued from preceding page)

heat exchange relation with said evaporator in said chamber, and a valve-controlled line by-passing said restrictor and communicating with the inlet



end of said enlarged portion and being operable to interrupt normal flow of liquid through the restrictor and thence to the evaporator, and to establish modified flow of vaporous refrigerant through said line to the inlet of said enlarged portion so that the stated flow of vaporous refrigerant through said line causes refrigerant liquid accumulated in said enlarged portion during normal operation to flow therefrom through said evaporator and toward said motor-compressor unit.

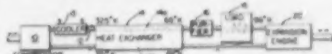
2,737,031. HEAT ENERGY-CONVERTING SYSTEM AND PROCESS. William A. Walle, Chicago, Ill. Application Feb. 12, 1952, Serial No. 271,227. 5 Claims. (Cl. 62-117.6.)



2. A heat energy-converting system comprising the combination of a circulating heat transfer medium, a volatile refrigerant, a compressor for imparting a predetermined pressure to said volatile refrigerant, a condenser communicating with the discharge side of said compressor, a rotary element, a casing in thermal conductive relation with said circulating medium and encompassing said rotary element and cooperating with the periphery of the latter to form a passageway for the

compressed refrigerant from said condenser wherein expansion of said refrigerant within said passageway occurs simultaneously with the absorption of heat by said refrigerant from said circulating heat transfer means, the rotation of said rotary element being dependent upon the resultant effect of the kinetic energy and the absorbed heat energy of said refrigerant during expansion of the latter, and means operatively connected to said rotary element and actuated thereby and in communication with the intake side of said compressor for imparting partial pressure to the expanded refrigerant from said passageway prior to the refrigerant returning to the intake side of said compressor.

2,737,032. REFRIGERATION SYSTEM AND METHOD. Allen Latham, Jr., Boston, Mass., assignor to Arthur D. Little, Inc., Cambridge, Mass., a corporation of Massachusetts. Application Feb. 4, 1952, Serial No. 269,721. 6 Claims. (Cl. 62-117.55.)



1. A low temperature compressed gas refrigeration system comprising a heat exchanger containing a compressed gas channel for conducting a compressed gas through the exchanger and an expanded gas channel thermally bonded to the compressed gas channel for conducting an expanded gas through the exchanger, a refrigeration load communicating with the compressed gas channel, means for expanding the compressed gas through a temperature decrease larger than the temperature increase through the load, means for conveying said compressed gas after its passage through the load to the expansion means, and means for conveying said expanded gas from the expansion means to the expanded gas channel of the exchanger.

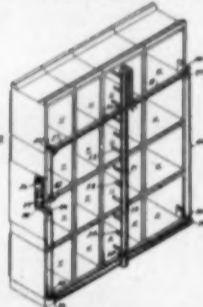
2,737,106. ADJUSTABLE AIR DISTRIBUTION UNIT. Walter W. Kennedy, Rockford, Ill., assignor to Barber-Colman Co., Rockford, Ill., a corporation of Illinois. Application May 4, 1953, Serial No. 352,068. 5 Claims. (Cl. 98-40.)



5. An air distribution unit having, in combination, means defining a plurality of annular air passages including an outer stationary deflector and suc-

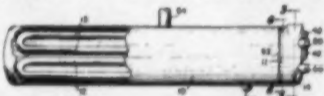
cively smaller intermediate and inner deflectors, angularly spaced radially disposed bars having inner ends terminating adjacent the center of the unit, means supporting each of said bars to swing about a stationary axis normal to the bar and to the axis of the unit and disposed adjacent said outer deflector, said intermediate and inner deflectors being suspended at radially spaced points from said bars, a member pivotally connected to said inner bar ends and movable axially of said unit by swinging of the bars about said stationary axes, said bars including longitudinally movable parts to permit axial movement of said member, and means associated with each of said bars and exerting sufficient friction thereon to hold said member against axial shifting under the weight of the bars and said intermediate and inner deflectors.

2,737,357. WASHERS FOR ELECTROSTATIC PRECIPITATORS. Ray W. Warburton, Medfield, Mass., assignor to Westinghouse Electric Corp., East Pittsburgh, Pa., a corporation of Pennsylvania. Application Dec. 1, 1953, Serial No. 395,544. 4 Claims. (Cl. 187-7.)



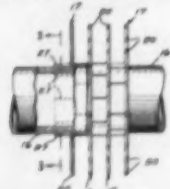
1. A washer for an electrostatic precipitator having a frame, a horizontally extending track supported from said frame, a vertically extending header assembly, a roller on said track rotatably supported from said assembly adjacent the upper end thereof, a horizontally extending guide attached to said frame below said track, a roller adjacent said guide rotatably attached to said assembly adjacent the other end thereof, pulleys at the ends of said track and guide, upper and lower cable clamps rotatably attached to said assembly adjacent said upper and lower ends thereof, a cable threaded around said pulleys and wrapped completely around said clamps, a plurality of nozzles extending from said assembly towards said frame, and means for rotating said cable for moving said assembly.

2,737,369. REFRIGERATING APPARATUS. Harold A. Wheeler, Dayton, Ohio, assignor to General Motors Corp., Dayton, Ohio, a corporation of Delaware. Application Feb. 25, 1952, Serial No. 273,792. 4 Claims. (Cl. 257-239.)



1. In a heat exchanger, a casing, a plurality of pipes disposed within said casing and having their ends disposed adjacent one another at one end of said casing, a manifold head adjacent said one end of said casing, said manifold head having partition means arranged to provide an inlet chamber, an outlet chamber and a plurality of fluid distributing chambers, said inlet and outlet chambers communicating with said distributing chambers by means of fluid passages formed in said partition means, and removable plugs provided for certain of said passages whereby the distribution of flow through said pipes may be changed by changing said plugs.

2,737,370. EXTENDED SURFACE ELEMENT FOR HEAT EXCHANGER. Martin Frisch, New York, and John Blizard, Garden City, N. Y. Application July 9, 1949, Serial No. 102,926. 6 Claims. (Cl. 257-262.16.)



1. In a heat exchange device comprising a tubular member, a metallic hub adapted to be mounted on and welded to the tubular member, and heat conducting means integral with and in heat exchange relationship with the hub, said heat-conducting means projecting outwardly from the hub, the hub prior to said welding having a plurality of slots therethrough circumferentially spaced from one another around the periphery of the hub and extend substantially parallel to the axis of the hub, the number and length of said slots being such as to provide areas of local weakness in the hub and the width and shape of the slots being such that they are closed when the hub expands during welding and remain closed thereafter, thereby shielding the peripheral surface of the tubular member.

They Won't Be Home (Final Listing)

The companies listed below have notified the NEWS that their plants and/or offices will shut down for vacations during the periods shown in the center columns.

The right hand column indicates whether the plant will continue regular shipments during the shutdown period, emergency shipments only, will ship stock items only, or will make no shipments at all.

Company	Shutdown Period	Plant Office	Shipments From Plant
Brunner Mfg. Co.	8/18-9/3	Staggered	Emergency
Bush Mfg. Co.	8/19-9/3	None	Emergency
Ebeo Mfg. Co.	8/18-9/3	8/18-9/3	Regular
Frigidaire Div., General Motors ..	8/27-9/3	None	Regular
Kelvinator Div., American Motors Corp.	8/13-8/31	None	Regular
Kramer Trenton Co.	8/20-9/3	8/20-9/3	Emergency, Stock Items only
Larkin Coils, Inc.	8/24-9/3		Emergency
McCray Refrigerator Co.	8/13-8/19	8/13-8/19	
McIntire Co.	8/25-9/3	None	Emergency, Stock Items only
Temprite Products Corp.	8/13-8/26	8/13-8/26	Stock Items only
Typhoon Air Conditioning Co.	8/27-9/9	None	None
York Corp.	8/20-8/26		Emergency

Listings of other plants with vacations starting prior to Aug. 8 appeared on page 25, July 2 issue; page 29, July 9 issue; and page 32, July 16 issue.

New! 5-Foot Model IL-5 Frozen-Food Merchandiser

Frozen foods must be displayed to be sold... and few supers have all the display space they need. Warren's new self-contained model is the ideal addition to island shelving. It can be used individually or in MULTI-CASE construction with one pair of ends. It offers large-capacity merchandising of seven full-size packages front to back, eight deep, 560 packages in all.

Write, wire or Call

Warren Refrigerators

BOX 1436 • ATLANTA 1, GEORGIA
Export Div. 354 S. Spring St., Los Angeles 13, Cal.

- * Capacity of 11 Cubic Feet
- * Automatic Electric Defrosting
- * No Drain Necessary
- * Self-Contained 1-HP Unit
- * Acid-Resistant Porcelain—white or COLORAMICS



LIKE YOUR PROBLEMS New ... Complex ... Challenging?

Here is an opportunity to put your creative ideas to work in the design and development of electrical and mechanical components for a complete line of major home appliances. Must have the ability to come up with different and original ideas with the objective of developing new gadgets and control devices for the white goods line.

Experience should be in design and development field, with a working knowledge of the materials commonly used in major household appliances. Engineering degree (mechanical or electrical) helpful but not essential. Location is in Galesburg, Illinois—a community with a future located in Western Illinois. Complete benefit program with salary based on your record of accomplishments. Write to Mr. Don E. Johnson giving full details of education, experience and salary desired.

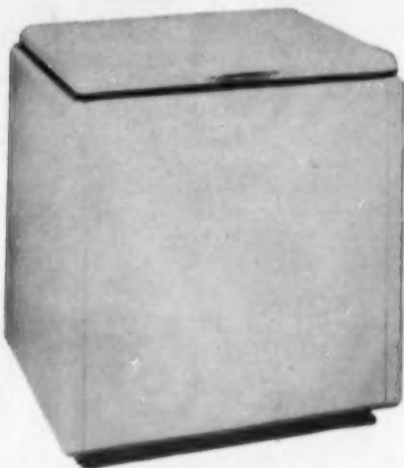
Midwest Manufacturing Corporation, Galesburg, Illinois
Subsidiary of Admiral

WANTED

In Quantities. For Immediate Delivery.

Freezer Cabinets — about 8 cu. ft.

Similar to this —



Send specifications of what you have to offer to

BOX A5577

Air Conditioning & Refrigeration News, Detroit 26, Mich.

ASSISTANT SALES MANAGER CAR AIR CONDITIONERS

A real opportunity for sales executive, age 35-40, to associate with one of the nation's largest producers of air conditioning equipment. Will be responsible for establishing national distribution of automobile air conditioners. Must have well-rounded experience in selling direct and through distributor and dealer organizations. A general background in air conditioning application essential. Located in a central state. Position will pay in excess of \$12,000. All inquiries will be handled promptly and confidentially. Send brief resume to BOX A5579, Air Conditioning & Refrigeration News.

New Home Cooling - Conditioning Demand Spurs Expansion of Eaton Mfg. Co. Plant

(Concluded from Page 1, Col. 2) will be Richard G. Hughes, Pampa, Texas builder, who played a major role in development of the National Association of Home Builders' Air Conditioned Village research project in Austin, Texas.

In this project, 22 experimental homes with complete air conditioning systems were built with cooperation and assistance of interested industry organizations.

"The successful Austin project demonstrated that central air conditioning systems are both practical and economical, and on the basis of actual experience, well appreciated by homeowners," said Hughes.

"Thus, there is a real community of interest between builders and manufacturers to increase the use of central system installations in new home construction."

Hughes stated that the chief topics to be covered during the session at the National Housing Center are:

Mortgage Financing

Mortgage financing: "Experience to date has shown that credit requirements for home buyers requesting either government-insured or conventional loans stiffen disproportionately when the prospective home is to be built with an air conditioning system. This tends to exclude many middle income families from purchasing air conditioned homes.

"At the conference, information developed at the Austin project and other data assembled by manufacturers and builders will be presented in an effort to arrive at a more rational relationship between air conditioning costs and ability of the prospective borrower to maintain his mortgage payments."

Residential Design

Residential design for air conditioning: "The findings in the Austin experiment plus independent studies made by a number of manufacturing concerns on proper design for air conditioning will be discussed.

"Since information on this subject has been developed only fairly recently, it is hoped that the recommendations of the conference will help to stimulate the application of sound design principles to a much higher proportion of current new home production."

Merchandising Air Conditioned Home

Merchandising air conditioned homes: "Wider acceptance of central system air conditioning will depend upon sound merchandising practices, according to leaders in the home building industry.

"At the conference, manufacturer representatives will advise builders on merchandising techniques used most successfully to sell residential air conditioning."

The conference will be held on the fifth floor of the National Housing Center, 1625 L St., N.W., starting at 9:30 a.m.

Toledo Warning-- Philco Suit--

(Concluded from Page 1, Col. 2) units. He said the complaints center around the noise caused by circulating fans in the units.

The units Colony is referring to are generally 5 to 6 ft. high and erected on a concrete foundation outside in the homeowner's yard.

Colony said his office has no objection if the unit is erected in the rear of the house. But if they build it within 5 ft. of the side-yard property line, they must have special permission from the Board of Zoning Appeals.

Connor Names Waff

NEW YORK CITY—Howard J. Waff, Jr. has been appointed exclusive representative for the Connor Engineering Corp. residential ceiling air diffusers in North and South Carolina and Georgia.

Philco Suit--

(Concluded from Page 1, Col. 5) and adequate servicing of Philco products in their respective areas and for the training of dealers and independent service organizations to carry out warranty and service obligations.

Philco is required to mail copies of the decree to distributors within 60 days of its signing. Final judgement becomes effective in 90 days.

The anti-trust complaint was filed on Dec. 15, 1954, in the United States District Court for the Eastern District of Pennsylvania. It alleged that Philco and its distributors restrained trade in Philco products by agreeing that the distributors would not sell outside their allotted territories and by requiring dealers not to resell to other dealers.

The complaint also attacked

Philco's right to purchase for a distributor's account Philco products transshipped outside the distributor's territory, it was added.

Philco contended that the selection of independent regional distributors to handle its products in specified marketing areas was justified by legitimate business considerations.

The company pointed out that Philco distributors encounter aggressive competition from other manufacturers' distributors and factory branches within their territories, as well as from chain stores and mail order houses selling under private brands.

It explained that certain of the provisions in Philco's agreements with which the complaint took issue were adopted in August, 1954 in an attempt to eliminate confusion in the distribution system and injury to the public.

The Complete Line... BUSH

... A BONUS TO REFRIGERATION CONTRACTORS

There's a BUSH unit for every commercial refrigeration need — high or low temperature. To service engineers and contractors this means a bonus in time saved "shopping" for the right unit... installation time saved by knowing the line... engineering costs shaved with the help of BUSH Sales Engineers who are always available to assist in selection and application.

There's a "peace-of-mind" bonus, also, in knowing that latest design, reliably-rated BUSH units cut down costly trouble calls.

INNER-FIN



BY BUSH



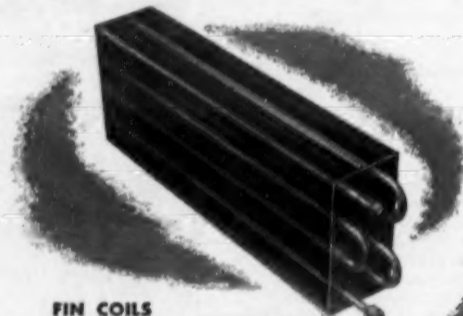
BUSH 'JF' JET-FLO COOLER

Stainless steel casing. Completely non-ferrous construction throughout. Patented Inner-Fin coil design. Arranged for "suck-through" operation, but supplied with extra fan for "blow-through" arrangement. Units can be wall or ceiling mounted.



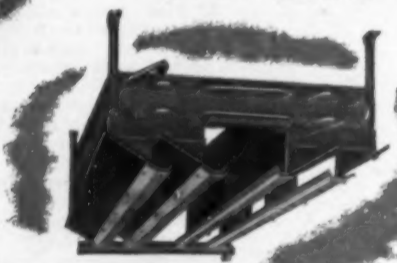
BUSH 'WJ' UNIT COOLERS

For space-saving installation at juncture of wall and ceiling. Air circulation through 180° radius with no blast.



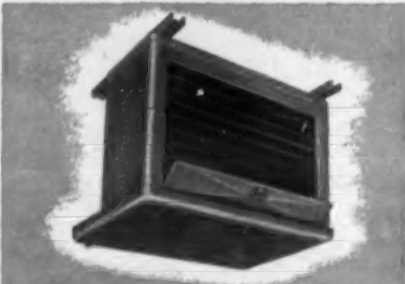
FIN COILS

Wide range of types and sizes to meet diverse requirements. Aluminum fins on copper tubing. Copper Inner-Fins.



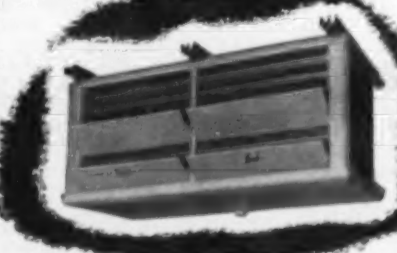
BUSH PLASTI-COOLERS

Jet black plastic baffles eliminate sweating. Baffles pitched for gentle, gravity-type air flow that provides maximum circulation without blast.



'HG' HOT GAS DEFROST UNITS 'ED' ELECTRIC DEFROST UNITS

Inner-Fin coil construction permits rapid defrosting from the inside. No reboilers, complicated piping, other "extras".



'UC' STANDARD UNIT COOLERS

Ten models to meet any application need. Aluminum fins on copper tubing. Slotted hangers for quick installation.



'GD' GLYCOL DEFROST UNITS

Product coolers featuring Inner-Fin coils that permit entirely separate defrosting circuit. Available in floor or ceiling models. Assembled defrost circuit kit supplied.



BUSH MANUFACTURING COMPANY • West Hartford 10, Conn.

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